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The Steel and Metal DIGEST

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THE TRADE OUTLOOK.

The history of the world over during the past year, particularly exemplified in our own country, has been a contest of extraordinary disturbances financial, political and social, too well known to require recital, against the wide spread movement of the masses to demand and appropriate to themselves the improvements, conveniences and comforts of modern civilization that have followed in the train of science and human endeavor, education and progress.

The year opened with gloomy forbodings and pessimism in the minds of those whose position brought them close to the heart of finance and business, but as month after month passed away without any recession in trade, there began to be a feeling that the working classes were so prosperous, and fundamental conditions so sound, that business would be able to stand up under the unfavorable financial and political conditions. Although contrary to past experience, it was believed that the scarcity of capital might be withstood until more normal conditions were restored by the increased fluid wealth from bountiful crops. Also, that since the certainty of a great change in the policy of our Government towards the Tariff and other vital matters had caused no business reaction, the actual changes going into effect would also have no untoward effects.

How Trade Reaction Began.

The failure of our crops to reach the expected quantity was the first warning that this was not to be the case, and caution began to spread from financial to commercial and manufacturing circles. While actual consuming and producing operations continued at record proportions, a great change took place in the mental condition

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of business, which found its expression in an indisposition to contract for future deliveries. The suspicion grew rapidly that business would recede and prices of commodities decline, and all purchases for futures seem to come to a standstill in the early Autumn. Manufacturers seeing their unfilled orders shrinking each day and prices declining, became depressed and a curtailment in operations of course followed. In a few weeks there came about a recession in operations, which in any other country would be impossible without a panic, ranging from 40 to 60% in all branches of the iron and steel and metal industries. But for the fact that speculation had been non-existant for a year there is no doubt the believers in the cyclical theory would have seen their expectations fulfilled by a panic in 1913. Such a thing is now impossible, as the situation has already passed the acute stage and it can be seen that the business and finances of the country have been able to withstand the strain that has been put upon them.

What Will The Future Show ?

Now what has the future in store? What is to be the story of 1914? We believe that the disturbances of 1913 have been liquidated to a large extent and that the foundation has been set on which it will be possible to build up the business of the country once more to normal proportions. In other words that the process of demolition has ended and the period of erection has arrived, and that whereas 1913 was marked by the curtailment of operations, 1914 will see a general expansion in all branches of industry. This opinion we think is more or less general, the only difference that exists being, as to how quickly or how slowly normal conditions will be restored. It is our opinion that they will come about more quickly than generally expected, for the following reasons:

1st. That the requirements of the population that strained the resources of our manufacturers a few months ago were real, not imaginary ones, and must again assert themselves.

2nd. That the conditions that have brought about our trade reaction were legislative and political, therefore extraneous and not fundamental, and that the money stringency was partly ephemeral and sentimental;—a scare of capital owing to hostile legislative influences, rather than a lack of capital.

To elaborate:

There was no overproduction at any time, no surplus stocks with manufacturers, jobbers or consumers, therefore it is absurd to imagine we can continue to supply our requirements with the factories running only 40 to 60% as at present; the requirements of 95 millions of people, who as regards the working classes were never so prosperous, and to whom the high cost of living makes little impression on account of the high wages they are receiving. It is also impossible to believe that with increasing education and power the people will not continue to demand and obtain even more of the conveniences and comforts of civilization, for which continued high wages and higher commodity values must be the price paid. We do not believe that what is called the liquidation of labor will take place, neither is it necessary or to be wished for. Any movement to generally reduce wages would put back the prosperity of the country and would involve a contest that would make the present depression look small.

What has been a revolution in Tariff and Banking matters has gone into effect and is a closed book for years to come. No important legislation to effect business is likely for at least another four years. While the Trust question and the management of business still remains to be cleared up it is rapidly being adjusted. The aim of the Government is now for peace, and their efforts will be to bring about quiet and prosperous times and hence insure a return to power at the next election.

Capital being no longer threatened, socially or politically, will come out of its shell, and conditions exist for great prosperity in business with capital assured of safety and peace.

We have accumulated an enormous credit in our foreign trade, our exports exceeding imports in 1913 by $750,000,000. The new Tariff has so far failed to increase our purchases of foreign goods or hurt our industries beyond what they can stand. The Currency Bill has corrected the dangerous system we have worked on for years.

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The railroads will undoubtedly prove their necessities and receive an advance in rates.

We predict a growing expansion from now on with trade in full swing before mid-summer. America is short of stocks, but long of prosperity and absolutely sound fundamentally.

OUR WONDERFUL FOREIGN TRADE

The public has given some attention, but less than is merited, to the spectacular showing our foreign trade has been making. We give below complete figures as there is altogether too much random editorial discussion of this subject, citing figures here and there, apparently almost at random, and leaving the reader more or less confused.

Merchandise Balance of Trade.

1900	$648,796,399
1901	584,955,950
1902	391,369,063
1903	489,258,756
1904	415,409,550
1905	447,846,245
1906	477,741,862
1907	500,256,385
1908	636,461,360
1909	252,677,921
1910	303,354,753
1911	560,167,586
1912	581,144,938

	1912.	1913.
January	$58,859,865	$63,969,492
February	64,655,888	44,083,024
March	47,834,424	31,981,213
April	16,729,183	53,618,977
May	19,682,172	60,883,709
June	7,202,945	32,159,039
July	218,617	21,929,008
August	13,088,101	50,257,467
September	54,858,569	47,245,408
October	76,645,518	138,976,158
November	125,149,293	97,051,154
December	96,220,363	.....
12 mos.	581,144,938	.....
11 mos.	484,924,575	642,100,403

The trade balances of the past few years appear better than they really were, in the circumstances, for the unseen balance has probably increased, and with both imports and exports larger than formerly, the difference ought also to be larger, in order that we may maintain our position. Therefore the balance of $581,000,000 in 1912 can be regarded as satisfactory, rather than exceptionally favorable. Comparing 1913 with 1912, we find there was not the great dip in June and July in 1913 that there was in 1912, which is an improvement. Next we see that in the last two months for which there are statistics, October and November, the combined balance is $34,000,000 greater in 1913 than in 1912. Finally, the result of 11 months is a balance $157,000,000 greater in 1913 than in 1912. Given the same balance in December, 1913, as there was in December, 1912, and such a balance is easily possible, there would be a balance for the year 1913 no less than $738,000,000, by far the largest balance for any calendar year in our history.

The October balance was by far the largest in any month in history. It might be supposed that this was due to crop movement, but an analysis of the figures shows that this was not the case. The imports were not particularly large, and the bulge in the exports lay in raw materials for manufacturing, and in manufactured goods other than foodstuffs. Our foodstuffs we are now keeping at home, for we need them to support our large manufacturing population.

Beyond question the nation is in a very strong position. In both 1911 and 1912 we imported about $20,000,000 of gold; this year we have exported more than $25,000,000, although so far as the merchandise movement was concerned we should have imported. We have not missed the gold, but have exported it because other countries needed it. They must have paid for the gold, and also settled for our increase in merchandise balance, by sending us our securities. Well, we have absorbed them; ought we not be very comfortable?

THE NEW BANKING LAW.

"The Federal Reserve Act", passed by Congress and signed by the President December 23, will rank with the original national bank law of fifty years ago and the law which created the first United States Bank. It makes a complete change in the national machinery for handling the finances of the people of the United States. It does not materially disturb the individ-

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ual national bank, or the banks existing under state charters, but it provides for a complete change in the machinery of exchange through which these banks carry on business with each other, and it also provides a new system of currency to take the place of national bank notes. Its most immediate effect on business will come through the changes which it makes in the "reserve" theory on which our old banking laws were based.

The Statistical Abstract of the United States, (1912) a government publication, gives figures from which we can form a rough idea of the banking system of the country, and the relation of reserves to deposits.

Beginning at the bottom, from a "reserve" point of view, we find that there were 1,922 savings banks with individual deposits amounting to $4,451,555,687, against which they held cash amounting to $45,452,063, or about one per cent. Whenever the people withdraw their funds from savings banks, these banks must find the cash by the sale of securities, which draws funds away from the commercial banks.

There were 1,091 private banks, with individual deposits amounting to $152,494,618, with $7,450,404 in cash on hand. This is a reserve of less than five per cent., and these private banks must draw from the larger commercial banks when they have a withdrawal of deposits.

There were 1,410 trust companies, with $3,674,578,238 in individual deposits and $282,151,463 cash on hand, a reserve of less than eight per cent. These trust companies, with their enormous deposits, are also dependent upon other banking sources for funds when they must meet any unusual demand from their depositors.

There were 13,381 state banks with $2,919,977,898 of individual deposits and $241,756,724 of cash on hand, a reserve of a little over eight per cent.

At the top of the pyramid stands the national banking system, with 7,307 banks (July 1, 1912), holding individual deposits (exclusive of deposits held for other banks) of $5,825,461,163, and holding specie and legal tender notes amounting to a little less than $900,000,000, or about fifteen per cent.

The grand total of individual deposits of all these banks was $17,024,067,607. About three-fourths of this enormous total of deposits is held on demand, and the savings banks which hold the remaining fourth are only protected for 30 or 60 days against the demand of the public for its money.

The entire amount of money in circulation at the date of this compilation was $3,284,513,094. If the banks had it all in their vaults it would not cover one-fifth of their obligations to the public. They actually held considerably less than half of the money in circulation; about enough to pay off eight per cent. of their depositors. The law, however, contemplates that every depositor shall receive his money on demand from all but savings banks.

The money held by the banks in their vaults is in reality the surplus or idle money of the country, not used at the time by the people for pocket circulation, in cash tills, or for other purposes requiring actual cash in hand. The surplus, after the popular demand is satisfied, flows into the banks. If for any reason the people want more money in their pockets, or in their old tea kettles or safety deposit vaults, the amount in bank vaults would automatically become less.

Our enormous system of bank credits has thus rested upon the fugitive "reserves" held in bank vaults, after actual popular demand or caprice has been satisfied. The house built upon sand was a very stable structure in comparison with our pyramid of national credit.

State laws have not been at all rigid in requiring state banks or trust companies to carry reserves. The national law has been very severe. National banks outside of the larger cities were required to have only fifteen per cent. of their deposits in reserve, and they might redeposit forty per cent. of their reserve with a "reserve agent" bank in a large city. In the larger cities a reserve of twenty per cent. was required, and in New York, Chicago and St. Louis, which were designated as "central reserve cities," national banks were required to have in cash in their vaults an amount equal to twenty-five per cent. of their deposits.

This peculiar situation made the national bank in New York or Chicago the "rich uncle" of about 25,000 banks in the United States. Whenever any one of the 25,000

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needed funds, it drew on its "rich uncle", and when thousands of them wanted money at the same time to meet clamorous depositors, the "rich uncle" was placed in a very uncomfortable situation.

In Europe the large commercial banks can go to the central government banks for funds, in the form of gold or bank notes, whenever there is an increased public demand for money. In this country our large banks in 1907 had to import gold from Europe and issue temporary checks to pass in circulation as money.

The new currency law will relieve considerably the dangers of our disorganized and chaotic system of banking. The quantity of the new "federal reserve notes" will not be fixed rigidly, but may be increased at any time when there is need of more money in circulation. We will not have to wait for imports of gold from Europe, which Europe might not be able to lend, next time, as freely as in 1907.

The rigid "reserve" theory which has held the national banks in bondage has been relaxed considerably. In the largest cities the required reserve is reduced from twenty-five to eighteen per cent.; in other large cities from twenty to fifteen per cent., and the country bank from fifteen to twelve per cent.

The reserve system has always aggravated any stringency in our financial affairs. In the past year we have had a tug of war between the "rich uncle" bank in New York or Chicago and its country relations for the control of gold and other money which could be counted as reserves. Deposits and loans are closely interwoven in modern commercial banking. A merchant or manufacturer who borrows money immediately has it placed to his credit as a deposit, and the bank in New York or Chicago must keep twenty-five per cent. cash against it. Every dollar withdrawn from the national banks of New York by country banks has made a reduction of four dollars in the amount of loans which the New York banks can carry.

Reducing the reserve of the individual bank to eighteen per cent. will add considerably to the loaning power of the bank, and the public will be amply safeguarded by the new law.

As soon as the law gets in working order, there will be a considerable easing of funds and expansion of credit. This will make it easier for the railroads to finance improvements, and will help all lines of business. Money has been too dear the past two years, and the chief reason was that we had outgrown an old, agricultural system of banking, well adapted to the requirements of fifty years ago, but utterly out of date in the twentieth century.

———o-O-o———

BUSINESS TRENDS.

THE STOCK MARKET.

Bradstreet's review of the security market for 1913, says in part as follows: "Transactions in stocks for the year at the New York Stock Exchange, as shown in the following table, were the smallest since 1897, representing a decrease of 36 per cent. from the dealings of 1912, which had been the smallest for a decade.

	Stocks	Bonds
January	8,748,973	$54,903,500
February	6,763,632	47,707,000
March	7,229,732	40,434,500
April	8,463,226	55,573,500
May	5,463,561	42,178,500
June	9,588,174	42,958,200
July	5,124,015	34,968,200
August	6,086,374	29,489,000
September	7,682,304	34,931,120
October	7,403,029	41,118,500
November	3,765,595	31,707,000
December	7,148,561	45,545,500
Total	83,467,176	501,514,520

Stock Transactions (Shares) for Ten Years.

1913	83,467,176
1912	131,051,359
1911	126,515,547
1910	163,970,440
1909	215,091,537
1908	197,154,198
1907	195,399,801
1906	283,662,848
1905	263,040,993
1904	186,529,384

Bond Transactions (Par Value) for Ten Years.

1913	$501,514,520
1912	677,254,000
1911	889,686,000
1910	634,746,503
1909	1,311,874,700
1908	1,080,728,020
1907	527,117,350
1906	677,651,600
1905	1,022,455,670
1904	1,036,810,560

"Bond market conditions in 1913 are indicated by a decrease of 26 per cent. in the transactions on the New York Stock Exchange. The restricted and relatively high money market furthermore compelled general concessions in prices for investment bonds, speculative issues suffering from the same depressing influences as were seen in the stock market. The discriminating attitude of the investing public and the necessity of offering attraction in the shape of higher interest rates, even with desirable issues, had many illustrations, chief among them being the sale of $45,000,000 New York City bonds in May bearing 4½ per cent. Railroads which undertook to market long-term bonds could only do so on the basis of a relatively high income return, and short-term notes were again a leading recourse of borrowing corporations. In the latter part of the year banking interests necessarily assumed a very conservative attitude as regards new security issues, such restriction being reflected by a decrease of 27 per cent. in the year's total emissions of corporate securities.

IDLE RAILWAY CARS.

The increase in idle cars of 44,311 for the first two weeks in December is an unfavorable feature, but it must be remembered that at this season of the year, the number of idle cars always increase. The stagnation in the steel trade and the mild weather has cut down the movement of coal, and this accounts for most of the increase in idle cars. Except in a few districts the season thus far has been an open one.

PIG IRON PRODUCTION.

Production of coke and anthracite pig iron as reported by the Iron Age:

Daily Rate of Production (Gross tons):

	1908.	1909.	1910	1911.	1912.	1913.
Jan.	33,718	57,975	84,148	56,752	66,384	90,172
Feb.	37,163	60,976	85,616	64,090	72,442	92,369
Mar.	39,619	59,232	84,459	70,030	77,591	89,147
Apr.	38,289	57,962	82,792	68,836	79,181	91,759
May	37,603	60,753	77,102	61,079	81,051	91,039
Jun.	36,444	64,656	75,516	59,585	81,358	87,619
Jul.	39,287	67,793	69,305	57,841	77,738	82,601
Aug.	43,851	72,546	67,963	62,150	81,046	82,121
Sep.	47,300	79,507	68,476	65,903	82,128	83,531
Oct.	50,554	83,856	67,520	67,811	86,772	82,133
Nov.	52,595	84,917	63,659	66,648	87,695	74,453
Dec.	56,158	85,022	57,349	65,912	89,766	.....

Total production for 1912 29,726,937

Total production for 1913 ..... *31,000,000

*Estimated.

BUSINESS TRENDS.

BANK CLEARINGS.

Following are the aggregate of clearings monthly at all cities in the United States, compared with the like periods in four preceding years as reported by Bradstreets:

(Six figures omitted)

	1913.	1912.	1911	1909.	1908.
Jan	$16,080	$14,977	$14,341	$13,905	$11,260
Feb.	13,471	12,788	12,136	11,121	8,671
Mar.	13,983	14,330	13,323	12,473	9,701
1st q'r	43,534	42,095	39,810	37,199	29,632
April	14,162	14,855	12,254	13,531	9,691
May	13,972	14,708	13,367	12,868	10,789
June	13,581	13,519	13,691	14,007	9,753
2d q'r	41,715	43,082	39,312	40,406	30,233
July	13,423	13,847	12,925	13,922	10,994
Aug.	12,260	13,099	12,495	13,390	10,151
Sep.	13,290	12,956	12,410	13,405	11,003
3d q'r	38,970	39,902	37,830	40 117	32,148
Oct.	15,553	17,003	13,335	15,710	11,983
Nov.	13,743	15,228	13,891	14,620	12,849
Dec.	14,536	15,201	14,027	15,721	14,264
4th qr	43,832	47,432	41,253	46,032	39,095
Total	168,054	172,511	158,195	164,054	131,108

COMMERCIAL FAILURES.

Commercial failures in the United States during 1913, according to the compilation of R. G. Dun & Co., were 16,037, which compares with 15,452 in 1912 and is considerably over the average of earlier years. A similar exhibit was made by the figures of defaulted indebtedness, as the total of $272,672,288 was much above normal. This, however, was due to several insolvencies of exceptional size, the statistics for 1913 being especially noteworthy in that respect, particularly in manufacturing lines. The increase in the number of suspensions occurred largely in the closing three months of the year, although both the second and third quarters also showed some growth in the mercantile and industrial mortality. More or less expansion in failures is naturally to be expected as more new enterprises are launched each year and the ratio of defaults to firms in business in 1913 was .99 per cent., against .98 per cent. in 1912, and compares with about .80 per cent. for the earlier years back to 1908, in which period the record was 1.08 per cent.

Failures in manufacturing lines last year numbered 4,243 against 3,839 in 1912, while the amount involved was $123,122,528, as compared with $86,719,932. In 1911 there were 3,502 similar reverses, when the aggregate debts were $87,371,623, while in 1910 the record was 3,280 insolvencies for $88,916,885. Trading suspensions in 1913 numbering 11,145 contrasted with 11,011, 9,480 and 8,929 in the three preceding years and the liabilities were also larger, a total of $115,115,212 exceeding the $91,779,965 reported in the previous year and showing even a wider difference as contrasted with the $84,239,679 involved in 1911 and the $74,990,993 shown in 1910. Among agents and brokers, and concerns not properly included in either the manufacturing or trading classes, the record was 649 failures for $34,434,548, against 602 in 1912 for $24,617,594; 459 for $19,450,363 in 1911, and 443 three years ago, when the liabilities were $37,849,219.

	Number.		Liabilities.	
	1913.	1912.	1913.	1912.
New Eng.	1,750	1,499	$22,660,082	$15,865,735
Middle .	4,158	4,259	98,185,489	81,851,778
So. Atlan.	1,753	1,726	24,778,146	21,095,814
Cent'l. So.	2,079	2,297	32,000,099	25,399,986
Cent'l. E.	2,708	2,482	58,220,557	29,637,355
Cent'l. W.	1,350	1,417	15,758,923	14,597,671
West ...	529	473	3,698,240	3,629,260
Pacific ..	1,710	1,299	17,370,752	11,039,892
U. S. ..	16,037	15,452	$272,672,288	$203,117,391

OUR FOREIGN TRADE.

November—	1913.	1912.
Exports ..	$245,645,895	$278,244,191
Imports	148,594,741	153,094,898
Excess of exports	$97,051,154	$125,149,293
Eleven months—	1913	1912.
Exports	$2,250,929,517	$2,148,902,186
Imports	1,608,829,114	1,663,977,611
Excess of exports	$642,100,403	$484,924,575

RAILROAD FORECLOSURES IN 1913.

The railroad foreclosures in 1913 were:

Name.	Mileage.	Fund'd debt.	Total.
Buf. & Sus. R.R.	265	$9,370,000	*4,000,000
Cassville & Wes.	5	.....	50,000
Den. Nth. & Pac.	215	10,940,000	10,940,700
Det. Tol. & Iron.	396	17,024,400	25,000,000
Lack. & Wy. Val.	23	5,000.000	1,848,750
Lewisb'g & Tyrone	85	489,000	1,200,000
Total six	1,159	$42,823,400	$43,340,450

*In addition $4,656,000 com stock owned by the Buffalo & Susquehanna R. R.

The number of roads foreclosed was only 6, but the amount of their securities was greater than in any year since 1909.

HOW LONG WILL TRADE DEPRESSION LAST?

(Special article from the Brookmire Economic Service.)

On October first, 1912, when the stock market reached the high point for the year, a young and amateurish speculator, who had been too timid to buy when the market was 10 or 15 points lower, owing to the possibility that the economic policies of the country might be adversely changed by the presidential election then ahead, seeing the market advance rapidly and decisively, became persuaded to the belief that the country was entering upon an era of prosperity and bought Steel Common at 80. And why not?

Fundamentals a Year Ago.

In the first place, the crops of 1912 were of record proportions, and sufficient to sustain a large volume of business, and in view of the fact that the industries of the country were just emerging from a period of dullness, stocks of goods were low, and this fact, together with the record harvests, seemed to insure a period of prosperity in the future. In the second place, the banking resources of the United States were in a normal condition, and the European money markets had largely recovered from the unsettlement occasioned by the Moroccan crisis in 1911; so that of the three prime fundamental factors—Crops, Money and Politics, the first two were reasonably favorable. Another basic influence giving a satisfactory tone to the financial situation was that our international credit balance had reached huge proportions during the year previous, so that under normal conditions we should have been able to get money from Europe to pay for the large balance of commodities exported.

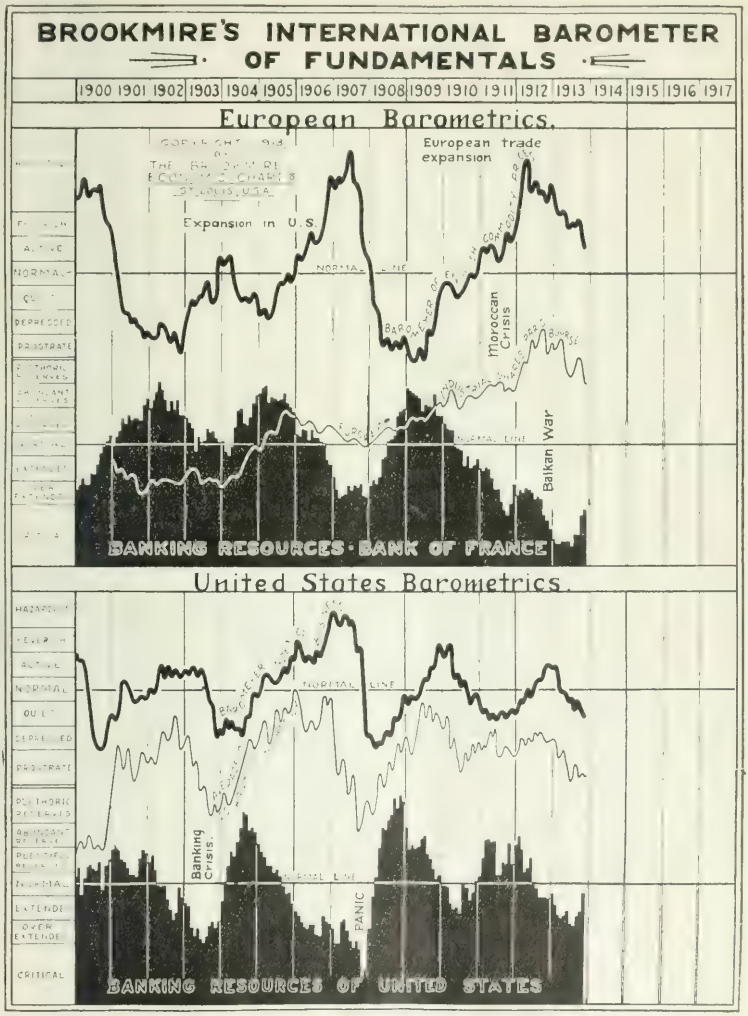
Not only were these fundamental factors satisfactory, but the steel business itself was wonderful, the orders of the United States Steel Corporation having increased 3,000,000 tons, or nearly 100 per cent. during the twelve months previous. Furthermore, not only was the steel industry enjoying unusual prosperity, but the railroads were in such need of new equipment and extensive improvements that it was reasonable to expect a steady stream of new orders for some time to come. After all, it would seem that the judgment of this amateur speculator was supported by a state of fundamental conditions sufficiently favorable to warrant a considerable degree of confidence in the outlook for the steel industry, even though Steel Common was selling at the highest price in over a year.

Beginning of Liquidation.

About two weeks later, however, Steel Common had suffered a 5 point decline, and our young seeker of profits in Wall Street was asking—"Wherefore the decline?" His broker replied:—"The Balkan War has broken out", whereupon the naive mind inquired:—"What has the Balkan War got to do with the steel business in Pittsburgh?" His notion that the amount of steel exported from Pittsburgh to the Balkan States was of relatively small consequence was probably correct, but because of his lack of knowledge of the fact that the money market is an international affair, he could not understand how financial unsettlement on the Continent of Europe might prohibit the building of a branch railroad in Oklahoma, and delay the construction of an office building in Kalamazoo.

Influence of Foreign Money Conditions.

Such a situation is not only possible, however, but is very like what has occurred during the past year. As a basis of interpreting what has happened, it will be highly illuminating to notice the trend of the banking index of the Bank of France since 1909. In the first place it shows a steady decline in resources until 1911, owing to the greatly increased demand for credit from business men in Europe during the period of industrial expansion then in progress. This declining tendency in reserves became accentuated in the late summer of 1911, during the Morroccan crisis, when French depositors withdrew gold from the Paris banks and hoarded it, fearing that there might be war between France and Germany. It is noteworthy that this money hoarding had a more drastic effect upon the New York financial markets than it did upon the financial markets of Europe themselves. The reason was that the Paris bankers, to protect the French markets, recalled loans previously made to Germany and New York. German bankers, moreover, borrowed $250,000,000 from New York, the result being a sudden drop in the banking index of the United States in July, 1911. In the general financial unsettlement of that period, Euro-


BROOKMIRE'S INTERNATIONAL BAROMETER
OF FUNDAMENTALS
1900 1901 1902 1903 1904 1905 1906 1907 1908 1909 1910 1911 1912 1913 1914 1915 1916 1917
European Barometrics.
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BY
THE BROOKMIRE
ECONOMIC CHARTS
ST. LOUIS, U.S.A.
Expansion in U.S.
European trade expansion
NORMAL LINE
Moroccan Crisis
Balkan War
BANKING RESOURCES-BANK OF FRANCE
United States Barometrics.
NORMAL LINE
Banking Crisis
PANIC
BANKING RESOURCES OF UNITED STATES

pean investors and underwriters sold heavily of their holdings of American securities in order to protect the European shares in their possession, and largely on account of this "European selling" the manipulators who were engineering a bull campaign in the New York stock market were forced to abandon their position, and the New York market collapsed.

The war scare was soon over, and during the first half of 1912 the money markets became more settled, business continued to expand until commodity prices reached such a high level as to make further expansion hazardous, and the European stock markets enjoyed the most terrific bull movement of recent years. The chart shows, however, that after the Balkan War broke out, in October, 1912, the resources of the Bank of France were conspicuously depleted by money hoarding, and as the war dragged on the hoarding became so acute that the Bank was forced to discontinue gold payments; and since the Bank of France is the world's central bank, its critical condition in 1913 meant that there was no effectual source of relief elsewhere, and that liquidation of securities and business was inevitable. Moreover, the money market being an international affair, as soon as the banks became extended in Europe, money rates were advanced until gold could be obtained from other money centers, and this explains why the United States could not take gold from Europe in spite of a big foreign trade balance in the fall of 1912, and also why France took $50,000,000 in gold from New York early in 1913. It further explains one of the most fundamental causes of the decline in the New York stock market in 1913, for Europe paid up her credit balance in securities instead of gold, and the continuous selling of American securities for this purpose forced the New York market to a continually lower level until the bottom was reached in June.

Railroad Buying.

The reader by this time will have gleaned from this somewhat tedious recital of the facts of recent financial history one very cogent, and the most important, reason for the present depression in the iron and steel industry; for the iron and steel industry cannot prosper unless there is extensive buying by the railroads, and the railroads cannot make improvements and extensions unless they can borrow money at satisfactory terms; hence, when the money markets became tight in 1913, the railroads were forced to curtail purchases, as is very evident from the following statistics of cars ordered:

Cars Ordered.

	1913.	1912.	1911.
First six months.	84,000	85,000	50,000
Last six months.	18,000*	150,000	80,000

* Five months.

In discussing the question which is the subject of this article, it is essential to consider how long the railroads will continue to be prevented from initiating a "buying movement". In the first place, it must be said that this will be begun as soon as possible, for the railroads are in urgent need of equipment and extension; but before the roads can buy largely, they will have to do a lot of financing in connection with the refunding of short term obligations maturing in 1914, as well as the placing of new flotations of securities.

The Money Market.

And since this imperative financing cannot be successfully accomplished without easy money conditions, and since easy money conditions in the United States are impossible while the French banks are in an overextended condition, the conclusion logically follows that there must be a substantial degree of trade reaction abroad, regardless of whatever adverse effect it may have upon American business, before the New York bankers will again be able to borrow gold from Europe and sell American securities to European investors. Indications are that the index of the Bank of France will rise above normal during 1914, but this will mean continued pressure upon commodity prices in Europe, and during this liquidation abroad the American market will suffer keen competition from European producers, a prospect which, considering also our lower tariff schedules, is adequate reason why we shall have a manufacturing depression during the first half of 1914.

The influence of a European depression upon the American markets next year, however, will not be an unmitigated evil, for although it will mean pressure upon our domestic prices, it will also mean that money is flowing back from trade channels into the banks in Europe, and this very thing is absolutely necessary before the steel business in the United States can experience another car buying movement. We are confronted, therefore, with the

paradox that **we must be commercially hurt before we can be financially helped,** but we repeat that liquidation of commodities must continue until the international money markets are improved, before this country can again expand on a healthy basis.

When the steel manufacturer therefore points out that the present trade depression is not the result of overproduction in the United States, he speaks the truth. But when he concludes from this observation that the trade reaction is merely a sentimental affair, which will change quickly if people will but look at the sunshine and not at the shadows, he is wrong, for there has been over-speculation and overtrading in Europe, as the accompanying chart shows, and the liquidation of securities and commodities which must go on in Europe during the coming year is no matter of mere sentiment, but a necessary prerequisite to easier money conditions.

What is Ahead.

Regarding the future outlook, the favorable factors are that (1) mercantile conditions in the United States are sound (there are no surplus stocks of goods), (2) that the general level of commodity prices in this country will soon be pounding along bottom, so that the country will be ripe for expansion whenever money and crop conditions permit; and (3) that judging from present indications the banking indexes both of the United States and France will rise above normal during 1914.

The course of events during the coming year, therefore, will be about as follows: During the early months of 1914 the New York bankers will be busy trying to take care of the financing which the railroads require, and in this work they will be somewhat handicapped owing to the fact that the bankers in Paris will have to finance a $260,000,000 French government loan in addition to loans to Balkan governments variously estimated around $500,000,000. Eventually, however, this financing will be accomplished, and the railroads will then be in a position to start a "buying movement", and it now seems possible that there will be an increase in steel orders during the latter part of 1914, foreshadowing a recovery in manufacturing.

WORLD'S PRODUCTION OF GOLD.

The world's production of gold fell off $11,000,000 during 1913. Most of this loss was due to war and strikes.

George H. Roberts, Director of the Mint, made public the other day his estimate of a total gold production in 1913 of $455,000,000.

The total production of the United States was $88,301,023, a decrease of about $5,000,000. Director Roberts made no comment on the cause of this. The gold production of Mexico also fell off about $5,000,000. This is attributed to the unrest and war in that country. The gold production of the Transvaal fell $5,000,000 behind its record of 1912 on account of the miners' strike.

Australasia lost about $1,000,000. This, Mr. Roberts explained, was a continuation of a decline that has been going on for several years.

The gold output of Canada increased about $2,700,000, while the British Indian output showed an increase of about $1,000,000.

California leads in gold production among the States of the United States, her total being $20,015,447. Colorado is close behind with $18,420,031, while Alaska is third, with $14,782,512. Nevada is the leading silver producer, her total being $9,123,229.

The production in the leading States is as follows:

State or Territory.	Gold.	Silver.
Alaska	$14,782,512	$229,453
Arizona	3,803,039	2,049,766
California	20,015,447	923,087
Colorado	18,420,031	5,536,837
Idaho	1,366,605	5,787,077
Montana	3,078,202	7,880,166
Nevada	12,279,131	9,123,229
New Mexico	844,086	921,943
North Carolina	111,442	1,371
Oregon	1,370,987	95,870
South Dakota	7,197,498	101,696
Utah	3,400,103	7,416,664
Virginia	3,514	14,330
Washington	692,021	159,038
Wyoming	30,491	2,254
Philippine Islands	787,039	6,029

The production of silver amounted to 67,601,111 ounces, valued at $50,648,871. The production in 1912 was 63,766,500 ounces.

TOPICAL TALKS ON IRON.

X. Rolled Products.

There are curious changes in the relative proportions of iron and steel going into the different rolled products. When material was forged instead of being rolled there was naturally a very great variety of wrought products. When the rolling mill was first used the product was necessarily plates, for the rolling mill was employed for decades before Cort developed the use of grooved rolls. Presumably these plates were largely used as the raw material of the smith. Later, when grooved rolls were in general use, there were still "slitting mills" which divided wide plates into narrow strips for the manufacture of nails.

For more than a century the product of the mill with grooved rolls was what we now call merchant bars, and there is no doubt that merchant bars therefore constituted more than half the rolled iron output. Then came the railroad which upon the invention of the steam locomotive developed rapidly, until rails became the chief product. In Mr. Swank's first report, published in 1873, he reports rail production in 1872 at 941,992 net tons, while all other rolled material he estimates at 1,000,000 tons, merchant bar and rod comprising 500,000 tons of this total. In the same year there were imports of 530,850 tons of rails, while the imports of all other rolled material were relatively small. Following the Jay Cooke railroad panic of 1873, however, the demand for rails greatly decreased, while the demand for bars continued to increase, so that bars passed rails, and they have been in the lead most of the time since then. The growth in demand has been steady, whereas the demand for rails has fluctuated widely. A high point in rail production occurred in 1887, with an output of 2,139,640 gross tons, and it was no less than 12 years before that output was reached again. Meanwhile the production of practically all other rolled forms had greatly increased. Beginning with 1899 rails took a fresh spurt, and a high point of 3,977,887 tons was reached in 1906. In not a single one of the seven years elapsed since then has the production of rails been as large, though the total production of steel has greatly increased.

In 1912, the latest year for which statistics are available, merchant bars stood at the head of the list, with 3,697,114 gross tons, rails coming second with 3,327,915 tons and plates (12 gauge and heavier) third, with 3,035,200 tons. Structural shapes, rods and skelp followed in the order named, but if ordinary sheets and black plates for tinning are taken together they take precedence over rods. Indeed, sheets and black plates, 13 gauge and lighter, came within 10 per cent. of plates, a remarkable showing considering the enormous difference in area between a ton of plates of average thickness and a ton of sheets of average gauge.

One of the most interesting displacements of one material by another was that of the cut nail by the wire nail. The wire nail made its appearance about 1886, with a production of about 600,000 kegs, and rapidly came to the front. In 1912 the production of wire nails was 15 times that of cut nails, wire rods having become the rolled product instead of nail plate.

The changes in distribution have not all occurred. Sheets promise continued rapid expansion, but there are some products which are strictly minor now which are likely to become very important. Steel wheels, for instance, which are chiefly a rolled product though of course rolled in a machine quite different from an ordinary stand of rolls, promise a large tonnage. Much is heard of sheet piling, but the production reported as such in 1912 was only 22,276 tons. The ordinary sheet piling, of course, involves a section not greatly dissimilar in weight and form from a beam, as it has a large web. Corrugated sheets, however, are also used. For many years much has been heard of the future of the steel railroad tie, but this article still has its future before it, since in 1912 the production was only 41,396 tons. The tonnage of the insignificant tie plate, a rectangle intended to distribute the pressure of the rail upon the wooden tie, was probably greater, and unless the all-steel tie very soon receives general adoption the tie plate will necessarily mount to a large tonnage, for it is absurd to have the rail pounding and cutting a wooden tie all the time.

SURVEY OF BUSINESS CONDITIONS.

WASHINGTON, Jan. 2. The Committee on Statistics and Standards of the Chamber of Commerce of the United States of America has prepared a survey of business and other conditions in the United States as of the last days of November. The report makes a summary of general conditions both by States and by sections of the country that are closely related as to natural conditions and resources.

Through the courtesy of the secretary of the National Chamber we print herewith the first map and a digest of the general condition report prepared by the committee. Maps and reports of this kind are to be in future a part of the regular service rendered by the National Chamber of Commerce.

Gist of Business Survey.

"Any general statement as to condition of manufacturing throughout the United States would at present be both misleading and inaccurate, since this condition varies according to locality and the nature of the product. The textile industry is adjusting itself to changed conditions resulting from decrease in tariff rates, but the effect so far does not justify previous apprehensions. The paper manufacturing business is below normal, while shoe manufacturing is good, with a prospect of an advance in prices. This is true likewise of the leather tanning business. All manufacturing connected intimately with the railroad and with the steel and iron industries is necessarily feeling the depression of these two great branches of business."

Conditions on Pacific Coast.

Generally fair conditions prevail throughout Oregon, Washington and California. Small grains suffered some damage in Eastern Oregon the past season because of drouth and hot winds, and in California were seriously affected by lack of rain at a critical time. The fruit crop, especially the apple crop, was not so large in Eastern Oregon and Eastern Washington as in 1912, but commanded a higher price.

Dairy Industry Increasingly Important.

The cattle and sheep industry in the Pacific slopes is in fair shape, owing to good demand and high prices. This is true likewise of the dairy industry, which is increasing fast. In this connection it is interesting to note that all over the United States, with scarcely an exception, the dairy industry is becoming the most valuable of all the pursuits of husbandry, and one most profitable to farmers. Dairy cows, alone of all cattle, were more numerous in 1910 than in 1900. The lumber industry is very quiet because of low prices and small demand. This arises from the fact that there is but little building being done save in the large cities.

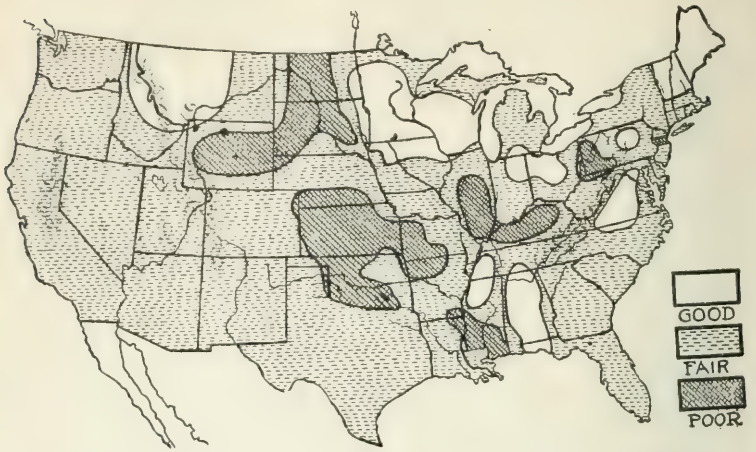
The lack, therefore of activity in building in the small towns as compared with that in the large cities is of great moment to the hardware business, especially as the use of builders' hardware, tools of all kinds and numerous other items center largely around the building trade; not only this, but the market for lumber is also largely affected by the very small demand from the railroads, which are the principal customers of the lumber interests. This is only one of many illustrations of the effect of the depressed condition of the railroads upon other important industries throughout the country.

The Rocky Mountain States.

General conditions in Montana are most promising and the State seems to be entering upon a period of great prosperity and development. The grain crops of 1913 as a whole were very good. Flaxseed cultivation is one of growing importance, especially in that State. Mining as a whole is good; manufacturing fair; lumbering poor, being practically the story of the rest of the country.

Changes in Cattle Raising Industry.

The story here of cattle and sheep raising is typical of the profound change which is taking place in this industry throughout the country. During the past six or seven years there have been protracted drouths at different times in the Western and Southwestern grazing grounds, and fierce and extensive blizzards in the regions further north. The destruction thus wrought by lack of water and grass on the ranges during the summer and by the heavy snowfalls and cold during the winter have been so severe that in some cases the herds have lost from 25



per cent. to 50 per cent. of their number.

The great increase in the population of this country and consequently the increased demand for meat as food, coming at the same time as the decrease in recent years of the number of cattle and sheep, has naturally brought about the present high price of meat. Consequently there has become a widespread apprehension of the ultimate trend of this tendency. A careful study of the facts, however, indicates that it is one of those economic problems that is likely to solve itself, and that the number of cattle in their relation to the number of inhabitants moves rather in a series of cycles than in a continued straight line. For instance, the number of cattle per one hundred of population is the same now as it was in 1870 and 1900, but we are evidently facing a great change in the cattle raising industry.

An impartial survey of the situation seems to warrant the statement that while the price of cattle will probably continue high in the near future, the various agencies mentioned will gradually work for a more abundant supply and a more reasonable price.

The Great Plain States.

In both North and South Dakota spring wheat, one of the principal crops, was seriously affected by drouth last summer. Corn was, also, somewhat less of a crop than in 1912. Corn growing in North Dakota is increasing, and the northern limit at which this grain can be grown successfully does not appear yet to have been reached. Cattle and sheep in both States are in small supply, but are bringing good prices. The dairy industry is reported as being in very good condition and increasing steadily in importance. Hog raising is suffering seriously from the prevalence of cholera in South Dakota, where it has caused great damage. In South Dakota mining is reported as being in poor condition.

Cattle, hogs and sheep are scarce in both States, having been largely shipped to market because of lack of feed and its high price. Mining is poor in Oklahoma, but in Kansas is fairly good. The oil industry in northern and eastern Oklahoma is in excellent shape, and has done much to repair the agricultural losses. The cotton crop in Oklahoma has proven larger than anticipated, but is not up to the earlier expectations. Poultry raising is one of the comparatively new industries in Oklahoma and is doing well. Throughout both States, and in fact throughout the country there is abundant moisture in the soil, which is a promising condition for the coming crops. Both in Oklahoma and in Kansas the wheat acreage has been very largely increased over that of last year, and this is

likewise true of the winter wheat everywhere.

The Central West.

Crops in Iowa last year suffered largely from drouth, and hog cholera has been quite severe the past season. In general, however, the State is in excellent condition, particularly in the northern part. Crops in Missouri, outside of wheat, also suffered much from drouths. Cattle and sheep industry is fair but handicapped by the high price of feed. Lumber industry is only fair, as is also the getting out of railroad ties, which is quite an important industry in the southeastern section. Hog cholera has made inroads on the herds and conditions vary from poor to good according to the locality. Peaches were an abundant crop, apples only moderate. Packing-house business is fair. The horse and mule industry is good, and is one of the valuable resources of the State. Coal mining varies from good to fair. Zinc mining is poor, owing to the low price of ore. The poultry industry continues good. Missouri leads all the States in the value of poultry, the surplus production being something like $45,000,000 annually, the sale of eggs alone being something like 150,000,000 dozen.

The Middle States.

Crops were generally good in Pennsylvania last year, but the steel and iron industry is suffering from lack of orders. Mills in general are laying off a number of men, and at present are only running from 60 to 65 per cent. of their capacity. A further reduction in this capacity is expected during the winter months, probably down to 50 per cent. Prices on raw materials in the steel and iron line and on staple items are low, thought to be near bottom, though some further reduction is expected in the more finished products. There is a general belief that there will be an increase in demand in the late winter and early spring to replace the fast depleting stocks in the hands of the wholesale and retail dealers.

Electric manufacturing interests in Pennsylvania are running on about three-fourths time. Anthracite coal industry seems well employed. Bituminous coal is fair, the coke industry is preparing to decrease the number of ovens in use because of the lack of orders in the steel mills. The dairy industry, while generally good, is feeling the effect of high priced feed. Silk and cotton mills are fair, cork manufacturing good. Quarries lack orders, while the cement manufacturing business is quite brisk. The oil and gas industry is in excellent condition.

New England Conditions.

What has been before said of the variation in different manufacturing branches applies in New England. The conditions are much mixed. Many of the large hardware manufacturers in Connecticut are only running from four to five days per week. The shoe industry is good; textile industry is only fair. Potatoes, which are an important crop in Maine, are good. Lumbering is fair, dairy industry good; this is true likewise of stone and marble quarries. The decline in the price of stocks of the New York, New Haven & Hartford and the Boston & Maine railroads, and the passing of dividends have exercised a serious effect throughout New England, where these stocks have been looked upon largely as investments.

South Atlantic States.

Throughout the Southeastern Atlantic States mercantile business is in good volume, and this is true in general throughout the West and the South. Business varies much in these sections, according to locality. Where crops were good business is fairly active, and in sections where crop returns last year were poor business is correspondingly quiet. The crops of 1913 were on the average, below normal, and notwithstanding the high prices that they command, the effect in general of this great loss has been widespread, even beyond those sections where crop returns were poor. Apparently this fact has much to do with the quietness and the conservatism of business in many sections.

The Committee on Statistics and Standards of the National Chamber of Commerce, which collected the information outlined above, consists of the following: A. W. Douglas, chairman, Simmons Hardware Company, St. Louis, Mo.; Dan Norman, Continental-Commercial National Bank, Chicago, Ill.; C. J. McPherson, Toledo, St. Louis & Western Railroad, Frankfort, Ind.; N. I. Stone, wage scale board of dress and waist industry, New York City, and Byron W. Holt, W. W. Erwin & Co., New York City.

THE STATISTICAL RECORD FOR 1913.

Dow Jones & Co. have collected the following interesting statistics for 1913: A general survey of results for 1913 in leading lines of achievement in the United States may be had from the appended table. Figures given for 1912 and 1911 are exact totals; a few of those for the current year are estimated on basis of periods close to the end of the year (†000 omitted). Prices are as of December 31:

	1913	1912	1911
R. R. gross earnings	$3,255,500,000	$3,118,600,000	$2,852,854,711
R. R. net earnings	785,000 000	822,000,000	767,794,358
Idle cars	101,535	‡17,058	76,814
Car orders	115,000	226,195	133,117
Autos built	350,000	325,000	200,000
†U. S. bank clearings	$169,552,000	$174,914,230	$160,229,773
†N. Y. bank clearings	94,634,281	100,743,967	92,372,812
†Phila. bank clearings	8,523,508	8,166,286	7,691,842
†Boston bank clearings	8,116,213	8,963,808	8,339,718
20 rys. average high	118.10	124.35	123.86
20 rys. average low	100.50	114.92	109.80
12 indus. average high	88.57	94.15	87.06
12 indus. average low	72.11	80.15	72.94
N. Y. stock sales, shares	83,500,000	131,128,425	127,207,258
N. Y. bond sales	$497,500,000	$675,213,500	$890,210,100
New securities sold	$1,650,000,000	$2,253,587,300	$1,739,487,720
Phila. stock sales, shares	,751,542	5,420,543	5,610,704
Phila. bonds sold	$10,519,088	$17,049,356	$18,383,845
Boston shares sold	5,596,500	11,134,908	7,774,737
Boston bonds sold	$10,445,300	$12,319,000	$15,547,220
Municipal bonds sold	$378,000,000	$385,752,924	$396,859,646
Failures, liabilities	262,000,000	203,117,391	191,061,665
Incorp. Eastern states	1,552 000,000	2,295,172,000	1,837,431,400
N. Y. disbursements	1,683,000,000	1,536,000,000	1,498,000,000
Interest payments, Phila	$73,493,526	$64,763,691	.....
Boston disbursements	238 420,448	211,262,660	198,809,796
Per capita circulation	35.15	34.72	34.67
No. national banks	7,555	7,431	7,340
Bank circulation	$757 000,000	$750,972,246	$740,603,187
National bank deposits	6,051,689,000	5,944,551,070	5,536,042,281
Call money	5¾a6%	6%	4%
Time money	4½a5%	5¼a6%	3¾a4%
N. Y. bank surplus	$11 080,900	$4,737,950	$16,453,200
Call money, Philadelphia	4½a6%	6%	4%
Time money, Philadelphia	4½a5%	6%	4¼%
Phila. bank surplus	$6 386,000	$7,899,000	$7,260,750
Merchandise exports	2,445 000,000	2,399,217,990	2,092,526,746
Merchandise imports	1,770 000,000	1,818,073,055	1,532,359,160
Phila. imports	$90 500,000	$92,566,087	$90,959,935
Phila. exports	71 439,410	72,769,617	70,517,141
Immigrants	1 350,000	1,026,360	782,545
Transatlantic passengers	2,200,000	2,138,000	1,911,530
Gold production, U. S.	$91 300,000	$93,451,500	$96,889,890
World's gold	461 000,000	471,498,559	462,058,037
Transvaal gold	176,000,000	180,703,384	163,024,015
Silver U. S.	40,000,000	39,197,500	32,192,880
Price silver	26 9 16d	29d	25 1-16d
U. S. copper production, lbs	1,023,000,000	1,581,920,287	1,431,938,338
Copper exports, lbs	865 000,000	746,396,452	754,902,233

	1913	1912	1911
Price Lake copper	15c	17 3/4c	14 3/4c
Copper surplus, lbs	62,800,000	105,312,582	89,454,695
Pig iron production, tons	30 900,000	29,727,137	23,649,547
Lake ore, tons	49,070,478	47,435,777	32,130,411
Pig iron, price	$15.90	$18.15	$15.15
Steel rails, tons	2,975,000	3,327,915	2,822,790
Steel billets, price	$20.00	$27.00	$20.00
Steel ingots and cast, tons	32,750,000	31,251,303	23,676,106
U. S. Steel, net	$143,000,000	$108,174,673	$104,305,466
U. S. Steel, unfill., ton	4,200,000	7,932,164	5,084,761
Anth. shipment, tons	69,400,000	63,610,578	69,954,299
Bitum., tons	495,600,600	450,104,982	405,907,059
Petroleum, bbls.	227,000,000	222,113,218	220,449,391
Crude oil, per bbl	$2.50	$2.00	$1.35
Sugar, per lb.	4.00c	4.90c	5.75c
Corn crop, bushel	2,446,988,000	3,124,746,000	2,531,488,000
Corn, value	$1,692,092,000	$1,520,454,000	$1,565,258,000
Wheat crop, bushel	763,380,000	730,267,000	621,338,000
Wheat, value	$610,122,000	$555,280,000	$543,063,000
World wheat, bushels	3,610,000,000	3,885,032,000	3,558,109,000
Oats crop, bushels	1,121,768,000	1,418,337,000	922,298,000
Oats, value	$439,596,000	$452,469,000	$414,663,000
Val. farm products	9,750,000,000	9,532,000,000	8,417,000,000
Dec. wheat	88 3/4c	87 1/4c	93c
Dec. corn	69 1/4c	45 5/8c	68c
Dec. oats	38 3/8c	32 1/4c	40 1/2c
Cotton crop, bales	14,350,000	14,167,000	16,109,349
Spot Cotton, lb	12.60c	13.20c	9.25c
Coffee, Rio 7	8 3/4c	14c	14 1/4c
Brads. price index	$9.2275	$9.4935	$8.9493
Bell Telephone conver	10,593,000,000	9,544,750,000	8,806,771,120
Fire loss U. S.-Canada	$226,000,000	$225,320,900	$234,337,250
Bldg., 20 cities	485,000,000	507,387,663	504,252,697
Phila. building construction	38,702,295	37,173,635	40,030,985
Phila. assessed value	1,606,471,775	1,554,302,400	1,533,791,867
N. E. building construction	172,950,000	199,465,000	171,161,000

†000 omitted. §Refinery output *Net shortage

THE MOTOR CAR IN UNITED STATES.

Illuminating statistics upon the tremendous growth of the motor car in the United States during the past three years have just been compiled by Mitchell May, Secretary of State, the figures having been secured through direct communication with the licensing authorities in the several states where registration laws prevail. The results show that the total registration during last year was 1,127,940 an increase of 605,001 or a total of 522,939 over 1911 when a similar table was prepared.

During the same period, exactly 4,072 foreign cars were imported into the country. Consequently with this difference, these figures showing the total registration of automobiles prove that over one million, one hundred thousand cars of American manufacture, of all sorts, were registered during the past year.

An estimate based upon the most conservative and accurate figures obtainable from other states having local, city or county registration systems, indicate that there are at present in use in the United States nearly 1,097,940 registered automobiles, deducting 30,000 registered in duplicate, but omitting approximately 50,000 registered by dealers.

Great effort was made to obtain sufficiently accurate figures showing the wonderful growth in the use of the commercial car, but the results were a disappointment as no separate registration scheme was found except in comparatively few states, although this growth may be predicated from the results shown in New York and Massachusetts, where the figures prove a gain of upwards of 61% and 47% respectively.

New York still leads with a total of 133,000 registrations, a gain of 51,000. Illinois is next with 95,000 as against 45,000 in 1911, New Jersey being no longer settled in second place, largely because of her new reciprocity law, thereby dropping into eighth place, and leaving Ohio to retain third place as in 1911 with a total of 87,000 against 46,000.

Pennsylvania is still fourth in number with 79,000 over 44,000 in 1911, while Iowa succeeds from seventh to fifth place with 77,000 as against 31,000. * * * * * *

A total registration of all the states in alphabetic order for the year 1913 as compared with the figures obtained in 1911 are:

State	1913	1911
Ala.	5,314	.....
Ariz.	3,132	.....
Ark.	5,100	1,500
Cal.	.....	14,566
Col.	13,297	.....
Conn.	20,136	13,500
Del.	2,145	1,228
D. C.	11,614	2,230
Fla.	3,720	1,333
Ga.	12,919	5,700
Idaho	2,426	.....
Ill.	95,592	42,000
Ind.	61,177	12,000
Ia.	77,269	29,323
Kan.	12,937	.....
Ky.	7,551	2,680
La.	8,139	.....
Me.	11,112	2,678
Md.	12,567	7,097
Mass.	57,197	36,975
Mich.	41,394	27,664
Minn.	45,054	19,000
Miss.	2,217	.....
Mo.	39,541	18,225
Mont.	6,102	.....
Neb.	34,943	7,766
Nev.	1,141	.....
N. H.	7,254	4,489
N. J.	50,491	48,266
N. Mex.	1,972	.....
N. Y.	132,579	81,655
N. Car.	7,710	1,452
N. Dak.	12,504	7,185
Ohio	86,153	45,150
Ore.	14,114	6,150
Pa.	79,846	43,074
R. I.	10,000	5,863
S. Dak.	14,700	3,250
Tenn.	8,900	2,000
Tex. (approx.)	28,000	.....
Utah	3,400	442
Vt.	5,913	3,298
Vir.	9,023	3,909
Wash.	21,000	8,000
W. Va.	5,007	2,041
Wis.	34,647	7,241
Wyo.	1,585	.....
Totals	1,127,940	522,939

NOTE.—Blanks indicate no figures available. Local registration in Ariz., Idaho, La., Mont., Tex., Wyo., Fla. Since 1905 Cal. registered 105,000. No figures for 1912.

IRON AND STEEL IN 1913.

There is no occasion to write a history of the market during 1913, and we do not intend to do so. One reason for writing the history of a nation is to explain what there is in the nation and how it came to be there, and for this purpose the chronological order is not bad. In a market, on the other hand, what occurs does not remain; a price vanishes to give way to another price; a rate of production changes and the material produced goes into consumption. Instead, therefore, of treating 1913 as a history let us treat it as a group of events; how has this group of events changed conditions from what they were one year ago?

One naturally reverts to our review printed in these columns one year ago, and at once finds something to arrest attention —a discussion of the possibility of a panic in 1913. The paragraph seems worth repeating at this moment:

"The famous 20-year cycle calls for a panic in 1913 and an ensuing industrial depression. We are not arguing, we are studying, and this is the last thing we should overlook. It is in the minds of many men. Current conditions do not promise a panic. Recently there was more of such prospect. As we approach the set time the signs diminish. That is favorable to there being no semblance of a panic, but it must be remembered that in the nature of these things the panic that is expected by any number of men is the panic which does not occur. This much at least is absolutely certain, that the last place in which any foundation for a panic is now laid is in the American iron and steel industry, and that is what is to be discussed here. If one occurs it will be despite the condition of this industry and the worst that can occur will be easily borne by this industry, compared with what it suffered in 1873-8 and 1893-8. Let us therefore simply consider the position of this industry."

The above brings out a point in 1913 which might possibly have been missed. It is a fact of some importance that there was no panic in 1913. We believe that a year ago the majority of thinking men expected some sort of a panic. Business slowed down, but that is no panic, and the slowing down was regular and orderly. In iron and steel this was particularly the case, which brings out another point, that steel mill activity continued longer in 1913 than was expected. On May 1st many men thought there would be a very decided decrease in mill activity by the close of June, but the outcome was that there was no material decrease in the rate of operation until October. That was of equal significance with the fact that in 1912, when business was limbering up, the steel industry reached quickly and easily a stage of practically full operation. We contend these symmetrical facts mean that the steel industry is undersized for the growth of the country.

If the steel industry was marked for a prolonged period of lowered activity, in relation to business activity generally, then it would have slowed down early and quickly. Instead, the demand for steel hung on with considerable tenacity. The important fact is that steel mill operations, practically at 100% of capacity in the early months of the year, continued at fully 90% of capacity through July, August and September. The relatively unimportant fact is that in October and November they dropped rapidly to a rate of little if any over 50%, and on account of holiday closings showed an average of less than 50% for the month of December.

The sharp falling off was natural in the circumstances. The season would account for some, since there is less consumption when outdoor work of all descriptions is greatly restricted over a large area of the country. Financial uncertainties would account for some, since a number of important projects, set on foot in 1912, reached completion and projects to take their place were not similarly financed in 1913. The attitude of the railroads we do not

IRON AND STEEL.

include. For months they have bought hardly anything, but in any event their purchases would have been for 1914 delivery. Railroad buying would have made the general market more active, but it would not have added materially to mill activity in the closing months of 1913.

And finally reduced mill activity would largely be accounted for by the fact that prices were in course of readjustment. Such periods of inactivity are necessary, more nearly inevitable than the measles. They are a feature of the market as it is conducted, or is allowed to conduct itself.

The recurrent periods of extreme activity with intermediate periods of reduced operation are a necessity in the circumstances. Conditions merely modify them. Conditions prolong or shorten, they intensify or diminish the intensity. On the one hand is the condition of general business, fixing its requirements in steel. On the other hand is the condition in the steel industry, fixing its ability to supply the material. Since the beginning of the industry both demand and productive capacity have grown greatly, and each has grown irregularly. Demand grew rapidly in 1905 and 1906, and the capacity could not keep pace. It tried to do so, but it requires a long time to build blast furnaces and steel works. As a result the collapse of the demand, in 1907 found the steel industry large, but still growing—many plants were in course of construction. Naturally the period of reduced activity was long, and the following period of great activity was short. Even at the height, early in 1910, hardly the entire capacity of the country was operating. Again there came a depression, not as long as the preceding, and the recent period of activity was longer than that of 1909-10. We think the tendency is for the present depression to be shorter even than the last, and for the next period of activity to be longer than its predecessor. That is merely an opinion, but it rests upon what we think are very reasonable grounds.

It is unnecessary to refer in detail to prices, since our regular tables trace clearly the course of prices in all branches of the iron and steel market, from coke and pig iron through to finished material and scrap. We shall refer only to average prices, considering the various views lately entertained as to how far prices ought to decline this time before a recovery would naturally be in order. The lowest level in iron and steel prices in all history was in 1897 and 1898. Immediately afterwards came a spectacular boom in demand and prices. Since then there have been various recessions, in 1900, 1904, 1909 and 1911. The last named was to the lowest level since 1898. The question as to the present (or, possibly, the recent) decline has been will prices go as low as in 1911, or lower than 1911, or lower than 1897-8?

Demand will in time determine. The actual cost of production is somewhat higher than in 1911, owing to the general wage advance of February, 1913. The final dip in prices in 1911 occurred at a time when the mills were operating fairly full, but were tempted to reach out for a little more tonnage, at cut prices, in order to run altogether full and thus cut down the cost of production on the entire output. Prices would not quickly drop as low, this time, as they did then. The steel mills really made no money then; they would do better now to hold what they have in the market and submit to greatly reduced operation. In time, of course, they would reduce wages and otherwise pare their costs so that they could break through the 1911 and not lose money. This, however, would distinctly require a period of many months if not years. Eventually—who knows?—things might be so changed that steel could be produced at lower costs than in 1898, but nothing short of a period of years of depression would bring about those revolutionary conditions.

If there is to be recovery in demand in a very few months, then all such speculations must be dismissed, for they are not in point. We believe the recovery in demand will be very quick. In some directions it is already seen, notably in the sheet market. The country as a whole is likely to become more prosperous, in the next few months, than is generally expected, or at least than was expected 60 days ago. The new tariff is not working altogether as badly as was expected. The new banking currency system promises to work fairly well. The chief criticism of it seems to be that it may induce inflation and a boom.

IRON AND STEEL.

If so, the time to worry is not now, but when the boom is at its height. Let us at least wait until then.

Production in 1913.

We give our estimates of production in 1913, compared with actual statistics for previous years, all figures referring to gross tons.

Pig Iron:	
1873	2,548,713
1883	4,595,510
1893	7,124,502
1903	18,009,252
1910	27,303,567
1911	23,649,547
1912	29,726,937
1913	31,000,000
Steel ingots and castings:	
1910	26,094,919
1911	23,676,106
1912	31,251,303
1913	33,000,000
Rolled iron and steel	
1910	21,621,279
1911	19,039,171
1912	24,656,841
1913	26,000,000

CAR BUYING.

First six months, 1912		85,000
July	15,000	
August	15,000	
September	10,000	
October	35,000	
November	25,000	
December	50,000	
Second six months		150,000
Year, 1912		235,000
January 1913	35,000	
February	18,000	
March	3,000	
April	15,000	
May	9000	
June	4,000	
First six months		84,000
July	2,000	
August	3,000	
September	1,000	
October	10,000	
November	2,000	
December	6,000	
Second six months		24,000
Year 1913		108,000

PIG IRON IN DECEMBER.

A noteworthy increase occurred in pig iron activity in December; not that the market was normally active, but that it was not extremely stagnant as it had been for four months. The first activity reported was in southern iron, and there remains some mystery about the transactions. There is ground for suspicion that some large interests were let in at a special price and the market held up against the smaller consumers.

In the northern market spasmodic activity appeared, but the result was a fairly large turnover by comparison with previous months. The market declined somewhat sharply, but this may be attributed to its being put under pressure by the enquiries, rather than by its developing any fresh weakness in the foundation. The entire northern market declined, but the most pronounced decline was at Buffalo, where a level of $12.75 at furnace was reached, fully 50 cents a ton lower than the low point reached by Buffalo on the decline of two years ago.

While production of merchant pig iron has been decreasing in all districts, the foundry iron production of the Mahoning and Shenango valleys has suffered the greatest decrease, December closing with only one furnace in blast on foundry grades. A slight change in the competitive lines between districts which began to show itself months ago became more conspicuous in December. The Cleveland furnaces had been going farther afield for orders, and in December they quoted prices in Pittsburgh territory, actually taking some business for New Brighton delivery in competition with the valleys. Even Buffalo tried to get into the Pittsburgh market, and failed by only a small margin, so small that upon repeated efforts it is quite possible an entrance may be effected. The time was that Pittsburgh shipped pig iron to Buffalo.

The average movement in pig iron prices, as shown by our **composite pig iron,** is indicated in the table below, which shows first the price of the composite on the first day of the month named, and second the

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dvance or decline during that month:

	On first of month.	Change during month.
January	$17.450	—17.5c
February	17.275	—33.0
March	16.945	—32.0
April	16.625	—61.0
May	16.015	—76.5
June	15.250	—55.0
July	14.700	—25.0
August	14.450	+17.5
September	14.625	+15.0
October	14.775	—20.0
November	14.525	—47.5
December	14.050	—50.5
January (1914)	13.545	
Year's decline	3.855	

STEEL IN DECEMBER.

If the closing month of the year did not absolutely bring an improvement in steel trade conditions, it at least saw a very distinct decrease in the rate of losing ground. Mill operations did not decrease during December, except that there was more than the usual amount of closing over the holidays. Production and shipments of steel in December probably averaged about 45% of the full capacity, but while this represented a decrease from November, the outlook clearly was that through moderate bookings in the closing fortnight of the year and the special curtailment in production in that period, the operations in

PIG IRON PRICES.

(Averaged from daily quotations at Phila., Buffalo and Cleveland, prices are delivered).

	Bessemer, Valley	Basic, Valley	No. 2 fdy, Valley	Basic Phila.	No. 2 Phila.	No. 2 fdy, Buffalo.	No. 2 fdy — Cleveland.	No. 2 fdy — Chicago.	No. 2 fdy — Birmingham.	Ferro-manganese.*	Furnace coke†
1912—											
Jan.	14.19	12.33	13.00	14.25	14.75	13.62	13.25	14.50	9.87	41.00	1.88
Feb	14.00	12.26	13.00	14.25	14.75	13.75	13.25	14.50	10.00	41.00	1.84
Mar.	14.11	12.77	13.12	14.35	14.84	13.75	13.25	14.50	10.11	41.00	2.04
April	14.21	13.00	13.25	14.75	15.00	14.00	13.25	14.50	10.54	42.54	2.53
May	14.24	13.00	13.25	15.20	15.16	14.00	13.25	14.96	10.90	47.25	2.37
June	14.25	13.10	13.25	15.25	15.58	14.00	13.45	15.00	11.06	48.50	2.21
July	14.26	13.42	13.39	15.50	15.61	14.11	13.75	15.10	11.65	49.27	2.34
Aug.	14.59	13.84	13.89	15.80	15.81	14.50	13.94	15.78	12.00	51.56	2.25
Sept.	15.35	14.32	14.49	16.25	16.35	15.50	15.15	16.58	12.65	56.02	2.42
Oct.	16.87	16.02	16.09	16.73	17.39	16.79	16.53	17.50	13.68	60.28	3.46
Nov.	17.10	16.28	16.84	18.00	18.19	17.44	17.35	17.78	14.00	61.42	3.95
Dec.	17.25	16.50	17.60	18.00	18.29	17.86	17.75	18.50	14.00	65.00	4.00
Year	15.04	13.90	14.26	15.69	15.98	14.94	14.51	15.77	11.71	50.40	2.61
1913											
Jan.	17.25	16.50	17.50	18.00	18.49	17.50	17.75	18.48	13.72	65.00	3.85
Feb.	17.25	16.43	17.12	17.75	18.23	17.22	17.44	17.87	13.46	65.00	2.60
Mar.	17.20	16.14	16.60	17.50	17.81	16.79	16.75	17.75	13.04	64.00	2.47
April	17.00	15.87	15.66	17.00	17.49	15.96	15.41	17.60	12.60	61.00	2.20
May	17.00	15.25	14.73	16.50	16.77	15.58	15.56	16.67	11.74	61.00	2.15
June	16.63	14.50	14.18	16.50	16.26	14.43	14.95	16.24	10.89	61.00	2.20
July	15.86	14.40	13.88	15.90	15.66	14.01	14.68	15.38	10.50	59.00	2.50
Aug.	15.63	14.09	13.94	15.25	15.56	14.20	14.50	15.44	10.85	56.70	2.50
Sept.	15.75	14.00	14.00	15.25	15.97	14.25	14.55	15.50	11.20	54.50	2.37
Oct.	15.67	13.97	13.83	15.25	15.94	14.25	14.73	15.50	11.48	50.28	2.10
Nov.	15.23	13.28	13.57	15.13	15.61	13.96	14.35	15.43	10.80	50.00	1.88
Dec.	14.95	12.83	13.38	14.75	14.98	13.32	13.76	14.83	10.50	47.00	1.77
Year	16.26	14.77	14.87	16.23	16.56	15.12	15.37	16.39	11.73	57.87	2.38

*Contract price, f.o.b. Baltimore; †Prompt, f.o.b. Connellsville ovens.

IRON AND STEEL.

January would necessarily show an increase.

Steel prices declined but slightly in December. Billets and sheet bars were almost stationary. Finished steel products, as shown by our composite, lost about a dollar a ton, which compares with $1.15 lost in November and $2.35 lost during the three months preceding. Steel manufacturers began to insist that the market had practically reached bottom, a contention which they had not undertaken to raise at any previous stage in the decline.

U. S. STEEL CORPORATION'S OPERATIONS.

EARNINGS AND UNFILLED ORDERS.

Earnings by Quarters.

Net earnings by quarters since 1908:

Quarter.	1913.	1912.	1911.
1st	$34,426,801	$17,826,973	$23,519,203
2nd	41,210,813	25,102,265	28,108,520
3rd	38,450,400	30,063,512	29,522,725
4th'	.....	35,185,557	23,155,018
Year	.....	108,178,307	104,305,466
	1910.	1909.	1908.
1st	$37,616,876	$22,921,268	$18,229,005
2nd	40,170,960	29,340,491	20,265,756
3rd	37,365,187	38,246,907	27,106,274
4th	25,901,730	40,982,746	26,246,675
Year	141,054,753	131,491,412	91,847,710

Unfilled Orders.

(At end of the Quarter):

	First.	Second.	Third.	Fourth.
1903..	5,410,719	4,666,578	3,278,742	3,215,123
1904..	4,136,961	3,192,277	3,027,436	4,696,203
1905 .	5,579,560	4,829,655	5,865,377	7,605,086
1906..	7,018,712	6,809,584	7,936,884	8,489,718
1907..	8,043,858	7,603,878	6,425,008	4,642,553
1908..	3,765,343	3,313,876	3,421,977	3,603,527
1909..	3,542,590	4,057,939	4,796,833	5,927,031
1910..	5,402,514	4,257,794	3,158,106	2,674,757
1911..	3,447,301	3,361,058	3,611,317	5,084,761
1912..	5,304,841	5,807,346	6,551,507	7,932,164
1913..	7,468,956	5,807,317	5,003,785	

BOOKINGS AND SHIPMENTS.

In this table, first two columns, percentages of bookings and shipments to total capacity, are our estimates, while last column is derived from official reports of "unfilled tonnage" while third percentage column is directly computed from this tonnage column.

1911—	Shipments. %	Bookings. %	Difference. %	Difference. Tons.
July	64	85	+21	+223,027
August	75	85	+10	+111,900
September ..	75	67	— 8	— 84,668
October	75	82	+ 7	+ 83,011
November ..	75	118	+43	+447,627
December ..	75	162	+87	+942,806
Jan. 1912 ...	70	95	+25	+294,960
February ...	78	85	+ 7	+ 74,479
March	85	68	—17	—149,359
April	92	124	+32	+360,044
May	93	101	+ 8	+ 86,098
June	94	99	+ 5	+ 56,363
July	82	95	+13	+149,733
August	92	110	+18	+206,296
September ..	98	135	+37	+388,132
October	98	187	+89	+1,042,874
November ..	96	120	+24	+258,512
December ..	97	104	+ 7	+ 79,281
January 1913	98	89	— 9	—104,796
February ...	98	82	—16	—170,654
March	93	77	—16	—187,758
April	93	51	—42	—490,194
May	95	41	—54	—654,440
June	93	47	—46	—517,005
July	90	55	—35	—407,961
August	90	75	—15	—175,888
September ..	92	74	—18	—219,683
October ...	87	74	—40	—490,018
November ..	70	59	—11	—117,420

COMPARISON OF METAL PRICES.

	Range for 1911.		Range for 1912.		Range for 1913.		Closing
Pig Iron.	High.	Low.	High.	Low.	High.	Low.	Dec. 31.
Bessemer, valley	15.00	14.00	17.25	14.00	17.25	14.25	14.25
Basic, valley	13.75	12.25	16.50	12.25	16.50	12.50	12.50
No. 2 foundry, valley	14.00	13.00	18.00	13.00	17.50	13.00	13.00
No. 2X foundry, Philadelphia	15.50	14.75	18.50	14.75	18.50	14.50	14.50
No. 2 foundry, Cleveland	14.25	13.25	17.75	13.25	17.75	13.50	13.50
No. 2X foundry Buffalo	14.25	13.50	17.25	13.50	18.00	13.00	13.00
No. 2 foundry, Chicago	15.50	14.50	18.00	14.50	18.00	14.00	14.00
No. 2 Southern, Birmingham	11.00	9.75	14.00	9.75	14.00	10.50	10.50
Scrap Iron and Steel.							
Melting steel, Pittsburgh	14.50	12.00	16.25	12.50	15.00	10.75	11.00
Heavy melting steel, Chicago	12.50	10.00	14.00	10.75	13.25	9.00	9.00
No. 1 R.R. wrought, Pittsburgh	14.25	12.15	16.25	13.00	15.75	11.50	11.50
No. 1 cast, Pittsburgh	14.00	12.25	15.25	12.35	15.00	11.50	11.50
Heavy steel scrap, Philadelphia	13.75	11.85	17.00	11.75	14.75	9.75	9.75
Iron and Steel Products.							
Bessemer rails, mill	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Iron bars, Pittsburgh	1.40	1.25	1.65	1.25	1.65	1.35	1.35
Iron bars, Philadelphia	1.35	1.20	1.67½	1.22	1.67½	1.22½	1.22½
Steel bars, Pittsburgh	1.40	1.05	1.40	1.10	1.40	1.20	1.20
Tank plates, Pittsburgh	1.40	1.10	1.50	1.10	1.50	1.20	1.20
Structural shapes, Pittsburgh	1.40	1.10	1.50	1.10	1.50	1.20	1.20
Grooved steel skelp, Pittsburgh	1.30	1.15	1.45	1.15	1.45	1.15	1.15
Black sheets, Pittsburgh	2.20	1.80	2.25	1.80	2.35	1.80	1.80
Galvanized sheets, Pittsburgh	3.20	2.80	3.40	2.80	3.50	2.80	2.80
Tin plate, Pittsburgh	3.70	3.30	3.60	3.30	3.60	3.40	3.40
Cut nails, Pittsburgh	1.70	1.50	1.70	1.50	1.70	1.60	1.60
Wire nails, Pittsburgh	1.80	1.50	1.75	1.55	1.80	1.55	1.55
Steel pipe Pittsburgh	80%	81%	79%	81%	79%	80%	80%
Connellsville Coke at ovens.							
Prompt furnace	1.90	1.45	4.25	1.80	4.25	1.75	1.85
Prompt foundry	2.25	1.85	4.50	1.90	4.50	2.40	2.40
Metals—New York.							
Straits tin	48.50	37.60	51.05	42.05	50.70	36.75	37.10
Lake copper	14.37½	12.20	17.80	14.15	17.00	14.50	15.37½
Electrolytic copper	14.25	12.00	17.75	13.95	16.87½	14.12½	14.81¼
Casting copper	14.12½	12.00	17.65	13.75	16.62½	13.87½	14.50
Sheet copper	19.00	16.00	23.00	19.00	22.00	19.75	20.00
Lead (Trust price)	4.50	4.25	5.10	4.00	4.75	4.00	4.15
Spelter	7.00	5.50	7.65	6.45	5.65	5.10	5.35
Cooksons antimony	9.50	7.50	10.50	7.12½	9.00	7.25	7.37½
Aluminum 98-99%	32.50	18.50	28.00	18.50	27.12½	18.50	18.75
Silver	56¾	51	64⅛	54¼	62⅛	56⅛	57⅛
St. Louis.							
Lead	4.50	4.12	5.02½	3.90	4.72½	3.85	4.10
Spelter	6.85	5.20	7.50	6.25	5.85	4.95	5.12½
Sheet zinc (f.o.b. smelter)	8.50	7.25	9.00	8.00	9.00	7.00	7.25
London	£	£	£	£	£	£	£
Standard tin, prompts	233	169	233	183¾	232	166½	169¼
Standard copper, prompts	64	53	80 7/8	60 13/16	77	61¾	65⅛
Lead	15 11/16	12	23¾	15 7/16	21½	15 7/16	18⅛
Spelter	27⅞	22	27 5/8	25	26¼	20¼	21⅝
Silver	26⅛	23	29 11/16	25 7/16	29⅜	25 7/16	26 7/16

COMPARISON OF SECURITY PRICES.

	Range for 1911.		Range for 1912.		Range for 1913.		Closing
Railroads.	High.	Low.	High.	Low.	High.	Low.	Jan. 2
Atchinson Top. & Santa Fe..	116⅞	99⅞	111¼	103¼	106⅝	90¼	93¾
Atchin. Top. & San. Fe. pfd.	105½	100¾	104¼	101⅝	102¼	96	99¾
Baltimore & Ohio	109¾	93½	111⅝	101¼	106⅝	90⅝	92¾
Canadian Pacific	247	195⅝	253	226	266¼	204	208⅝
Chesapeake & Ohio	86¾	68¾	85¼	68¼	80	57⅝	60¼
Chicago, Mil. & St. Paul	133½	105¾	117⅝	99⅛	116¼	96¾	99¾
Erie R. R.	38⅜	27¼	39⅝	30	32½	20¼	27⅛
Great Northern, pfd.	140	119	143¾	126	132⅝	115	126
Lehigh Valley	186⅞	151	185¼	155⅝	168⅜	141¼	149¼
Louisville & Nashville	160¾	136½	170	138	142¼	126¼	133½
Missouri, Kansas & Texas ...	38⅛	27	31⅝	25½	29⅛	18⅛	19⅛
Missouri Pacific	63	33¼	47¾	35	43⅝	21¼	24⅛
New York Central	115½	99⅞	121½	106⅛	109¾	90⅜	90⅞
N. Y., N. H. & Hartford ...	151⅛	126⅞	142¼	126	129⅞	65⅝	76⅜
Northern Pacific	137⅞	110¾	131½	115⅜	122⅝	101¾	109⅜
Pennsylvania R. R.	130⅛	118¾	186¼	119⅞	123¾	106	109¼
Reading	161	134	179¼	148⅛	171¾	151⅜	168⅜
Rock Island	37⅛	22	30½	22⅜	24⅞	11⅝	13¼
Southern Pacific	126⅜	104½	115½	103½	110	83	88⅞
Union Pacific	193⅜	153½	176¾	150¾	162¾	137¾	155
Wabash	18¾	5¾	9	3¼	6	2	2½
Industrials.							
Amalgamated Copper	71⅝	44¾	92¾	60	80½	61⅝	73
Am. Beet Sugar	59¾	39¾	77	46½	50½	19¾	23⅜
American Can	12½	8⅞	45⅜	11¼	46⅞	21	29¾
American Can pfd.	93⅛	77	126¼	90⅝	129½	80½	89⅝
Am. Car & Foundry	58¼	42⅜	63⅝	49⅜	56⅜	36½	45
Am. Cotton Oil	62⅜	41⅝	60¼	45½	57⅜	33½	37½
Am. Locomotive	43¼	32⅛	47¼	31¾	44½	27	32¼
Am. Smelting & Refining	83⅞	56⅝	91	66½	74¾	58½	63⅝
Brooklyn Rapid Transit	81⅝	72	94⅛	76¾	92¾	83¾	88
Chino Copper	27½	16½	50⅜	25	47⅜	30⅜	38½
Colo. Fuel & Iron Co.	36⅜	25	43¾	23⅛	41½	24½	28½
Consolidated Gas	148½	128¾	149½	135¾	142⅜	125⅛	129½
General Electric	168⅜	142	188½	155	187	129¾	138¼
Interborough Metropolitan ..	20⅜	13⅛	22	16¼	19⅝	12⅜	15
International Harvester	129⅜	99⅛	126⅞	105¼	111½	96	101
International Steam Pump ...	44	23	34	12	18½	4½	6½
Lackawanna Steel	48	30	55½	28	49⅞	29⅝	38
National Lead	59	42½	68¼	51⅛	56¼	43	44
Ray Consolidated Copper	19	13	24⅛	16	29	15	18⅛
Republic Iron & Steel	35½	18	35⅛	15¾	28⅜	17	20½
Republic Iron & Steel, pfd...	99½	74⅛	93⅜	64½	92¼	72	80¼
Sloss-Sheffield	56¼	34	59¾	39¼	45½	23	28
Texas Co.	136½	74½	130⅝	81	132½	89	120½
U. S. Rubber	48½	30½	67⅞	45¼	69½	51	58½
U. S. Steel Corporation	82⅞	50	80¾	58¼	69⅛	49⅞	58½
U. S. Steel Corporation, pfd.	120⅞	103	117	170¼	110¾	102½	106¼
Utah Copper	57⅞	38	67½	52½	60½	39⅝	50⅛
Va.-Carolina Chem.	70⅛	43⅛	57¾	40¾	43⅛	22	26
Western Union Telegraph ..	84½	71⅝	86¼	72	75⅛	54⅝	59

IRON AND STEEL.

WESTERN IRON AND STEEL IN 1913.

Chicago has felt in the past month the full force of the liquidation which has been in progress for a year in the iron and steel industry. Prices of bars, shapes, plates, sheets, wire products and finished materials in general have dropped at the end of the year to the low level of two years ago. Scrap is trying to find a place lower than any former level in the history of this market.

If prices alone made the market the situation would be discouraging, but there are other factors than price to be considered. One healthy factor is that the market is not overstocked anywhere. The liquidation in prices has been so gradual throughout the year that buyers were on guard. Business has been good among manufacturers who represent the consumers of iron and steel. They have worked up and sold their stocks, and are now ready to take advantage of a low market.

The Pig Iron Market.

At the beginning of the year pig iron and scrap began to weaken. Southern iron went to the bottom in May and June. A quiet buying movement which began late in June and continued through July raised prices for a short time about a dollar, from $10.50 to $11.50, but the improvement did not hold. There was not enough buying to bring idle southern furnaces into blast. The southern producers, in fact, have gone through the year with about one-third of

FINISHED STEEL PRICES.

(Averaged from daily quotations, f.o.b. Pittsburgh.)

	Shapes.	Plates.	Bars.	Pipe.	Wire.	Wire Nails.	Cut Nails.	Sheets Black.	Sheets Galv.	Tin plate.	Composite Finished steel.
1912—											
January ...	1.15	1.15	1.15	81	1.37	1.57	1.50	1.90	2.90	3.40	1.5123
February ...	1.11	1.11	1.11	81	1.40	1.60	1.50	1.85	2.86	3.32	1.4878
March ...	1.12	1.11	1.10	81	1.40	1.60	1.55	1.80	2.80	3.30	1.4790
April ...	1.20	1.20	1.15	81	1.40	1.60	1.55	1.85	2.87	3.30	1.5206
May ...	1.25	1.25	1.20	81	1.40	1.60	1.55	1.90	2.94	3.38	1.5590
June ...	1.26	1.26	1.21	80	1.40	1.60	1.55	1.90	2.95	3.40	1.5794
July ...	1.30	1.30	1.25	79½	1.42	1.62	1.55	1.96	3.01	3.48	1.6188
August	1.37	1.37	1.30	79	1.46	1.66	1.58	2.03	3.12	3.50	1.6784
September ..	1.40	1.40	1.31	79	1.50	1.70	1.60	2.12	3.25	3.59	1.7086
October ...	1.47	1.47	1.39	79	1.50	1.70	1.63	2.20	3.35	3.60	1.7588
November .	1.50	1.50	1.40	79	1.50	1.70	1.68	2.25	3.40	3.60	1.7750
December ..	1.50	1.50	1.40	79	1.53	1.73	1.70	2.25	3.40	3.60	1.7789
Year	1.30	1.30	1.25	80	1.44	1.64	1.58	2.00	3.07	3.46	1.6214
1913—											
January	1.50	1.50	1.40	80	1.55	1.75	1.70	2.32	3.47	3.60	1.7737
February ...	1.45	1.45	1.40	80	1.55	1.75	1.70	2.35	3.50	3.60	1.7625
March	1.45	1.45	1.40	80	1.56	1.76	1.70	2.35	3.50	3.60	1.7646
April ...	1.45	1.45	1.40	79½	1.60	1.80	1.70	235	3.45	3.60	1.7743
May ...	1.45	1.45	1.40	79½	1.60	1.80	1.70	2.35	3.40	3.60	1.7786
June	1.45	1.45	1.40	79	1.55	1.75	1.70	2.29	3.38	3.60	1.7719
July	1.45	1.45	1.40	79	1.50	1.70	1.70	2.25	3.31	3.60	1.7600
August	1.45	1.44	1.40	79¾	1.47	1.67	1.60	2.20	3.25	3.60	1.7400
September..	1.40	1.40	1.40	80	1.43	1.63	1.60	2.12	3.17	3.60	1.7093
October ...	1.39	1.36	1.39	80	1.40	1.60	1.60	2.04	3.08	3.50	1.6779
November	1.34	1.29	1.30	80	1.40	1.60	1.60	1.98	2.98	3.40	1.6203
December ..	1.24	1.21	1.22	80	1.35	1.55	1.60	1.90	2.90	3.40	1.5558
Year	1.42	1.41	1.38	79½	1.50	1.70	1.66	2.21	3.28	3.56	1.7241

PRICE CHANGES.

Price changes in merchant bars, structural shapes, plates, wire nails, merchant pipe, sheets and tin plates are given below, with dates, from the beginning of 1912. These are the commodities used in compiling our **composite finished steel**. In some cases the dates named are those upon which prominent producers announced price changes, but more frequently dates are merely those upon which our quotations were changed.

1912—			
Jan. 23	Wire nails	1.55	to 1.60
Feb. 7	Tin plate	3.40	to 3.30
" 7	Sheets	1.90	to 1.85
" 8	Bars	1.15	to 1.10
" 8	Plates	1.15	to 1.10
" 8	Shapes	1.15	to 1.10
" 26	Sheets	1.85	to 1.80
Mar. 20	Shapes	1.10	to 1.12½
" 21	Shapes	1.12½	to 1.15
" 21	Plates	1.10	to 1.12½
April 1	Plates	1.12½	to 1.15
" 9	Sheets	1.80	to 1.85
" 10	Bars	1.10	to 1.15
" 10	Plates	1.15	to 1.20
" 10	Shapes	1.15	to 1.20
" 22	Sheets	1.85	to 1.90
" 24	Bars	1.15	to 1.20
" 24	Plates	1.20	to 1.25
" 24	Shapes	1.20	to 1.25
May 7	Tin plates	3.30	to 3.40
June 1	Pipe	81%	to 80%
" 26	Bars	1.20	to 1.25
" 26	Shapes	1.25	to 1.30
" 26	Plates	1.25	to 1.30
July 1	Sheets	1.90	to 1.95
" 9	Tin plates	3.40	to 3.50
" 22	Wire nails	1.60	to 1.65
" 24	Sheets	1.95	to 2.00
" 25	Pipe	80%	to 79%
Aug. 1	Bars	1.25	to 1.30
" 1	Plates	1.30	to 1.35
" 1	Shapes	1.30	to 1.35
" 13	Sheets	2.00	to 2.05
" 20	Plates	1.35	to 1.40
" 20	Shapes	1.35	to 1.40
" 26	Wire nails	1.65	to 1.70
Sept. 4	Tin plate	3.50	to 3.60
Sept. 4	Sheets	2.05	to 2.10
" 10	Sheets	2.05	to 2.10
" 11	Sheets	2.10	to 2.15
" 26	Bars	1.30	to 1.35
Oct. 8	Plates	1.40	to 1.45
" 9	Bars	1.35	to 1.40
" 10	Plates	1.45	to 1.50

1912—			
Oct. 8	Shapes	1.40	to 1.45
" 10	Shapes	1.45	to 1.50
" 17	Sheets	2.15	to 2.25
Dec. 16	Wire nails	1.70	to 1.75
1913—			
Jan. 2	Pipe	79%	to 80%
" 14	Sheets	2.25	to 2.35
Feb. 1	Plates	1.50	to 1.45
" 1	Shapes	1.50	to 1.45
Mar. 24	Wire nails	1.75	to 1.80
April 14	Pipe	80%	to 79½%
May 27	Pipe	79½%	to 79%
June 2	Wire nails	1.80	to 1.75
" 11	Sheets	2.35	to 2.30
" 18	Sheets	2.30	to 2.25
July 1	Wire nails	1.75	to 1.70
Aug. 9	Pipe (¾-3-in.)	79%	to 80%
" 12	Wire nails	1.70	to 1.65
" 21	Sheets	2.25	to 2.15
" 27	Plates	1.45	to 140
Sept. 1	Shapes	145	to 1.40
" 22	Sheets	2.15	to 2.05
Oct. 2	Tin plates	3.60	to 3.50
" 3	Wire nails	1.65	to 1.60
" 16	Plates	1.40	to 1.35
" 21	Plates	1.35	to 1.30
" 23	Shapes	1.40	to 1.35
" 24	Sheets	2.05	to 2.00
" 27	Pipe	2½%	extra discount
" 28	Bars	1.40	to 1.35
Nov. 3	Tin plate	3.50	to 3.40
" 7	Bars	1.35	to 1.30
" 17	Sheets	2.00	to 1.95
" 25	Bars	1.30	to 1.25
" 25	Plates	1.30	to 1.25
" 25	Shapes	1.35	to 1.30
" 28	Wire nails	1.60	to 1.55
Dec. 2	Sheets	1.95	to 1.90
" 3	Shapes	1.30	to 1.25
" 4	Plates	1.25	to 1.20
" 11	Bars	1.25	to 1.20
" 22	Shapes	1.25	to 1.20
" 31	Sheets	1.90	to 1.80

IRON AND STEEL.

their rated capacity in blast. Those which could remain in operation on a market below $12 were not able to realize the full advantage of their physical economy, in competition with their neighbors, as they had to meet prices of local northern iron in Chicago and other northern markets, where they sell their surplus, and this northern competition backed them down to an unprofitable basis.

The Chicago buyer has gained, and the Chicago producer has suffered, from local overproduction in this district, caused by the building of more capacity in blast furnaces than the market requires. The Wisconsin furnaces, of which there are five stacks in the southern part of the state producing merchant grades, have local ores from which they make iron closely approximating the analysis of southern foundry. This Wisconsin iron has almost excluded the southern product from that state, and is working its way into the confidence of Chicago foundries and buyers through Northern Illinois.

Along with this overproduction in the Chicago district there has been a surprising increase in the supply of scrap. Foundry chemistry has made it possible to use a larger percentage of scrap than in the old days, and this has displaced pig iron to a considerable extent.

In December two Chicago furnaces, one of them operated by an independent steel company, have sold round tonnages of basic iron for delivery in St. Louis. The local furnaces have sold a large tonnage to heavy buyers, and indications point to a turn. In the last few days of December inquiries have been coming in freely from foundries which had announced they would not buy until after January 1.

Rails and Railroad Buying.

The liquidation in steel can be traced almost entirely to the fact that the railroads have been out of the market since early in the year. A few rail contracts have been placed for 1914 rolling, but the tonnage involved is small when compared with the capacity of the mills, or the usual aggregate of western rail contracts at this time of the year. High interest rates which have prevailed during the year, the New Haven and Frisco scandals, and other depressing features, have made it difficult for the railroads to sell bonds. Money has been getting easier in the past two months, and financial conditions ought to improve materially since the new Currency Law is now in effect.

Plates and Shapes.

It was supposed early in the year that the mills had enough plate and structural tonnage on their books to carry them into 1914; but new business has not contributed much to rolling schedules and mills are now about at the end of their contracts. There is very little tonnage held up at the request of buyers. Prices held firm until the last quarter, but have dropped rapidly in the past two months.

Chicago is overbuilt with large office buildings in the Loop district, and not much tonnage in this line can be expected during the coming year. Plans for a new Union Depot are held up by negotiations with the City Fathers over franchise and street rights. Outside of Chicago, however, a favorable money market will no doubt develop a large tonnage of structural business.

The Steel Box Car Has Arrived.

One of the striking features of the market at the close of the year is an inquiry from the Union Pacific Railroad for steel box cars, comprised in an inquiry for 5,000 freight cars. The Union Pacific has been experimenting for several years with steel box cars built in its own shops, but this is the first definite commercial order that has come on the market. Curiously enough, the lumber companies of the Pacific Coast have rushed to the front with a protest against the substitution of steel siding for wood, which would take away from them a market for their lumber. They may have enough influence, as large shippers, to restrict or delay the placing of orders for all steel cars. The general use of steel siding would make an enormous new market for steel sheets.

The Steel Bar Market.

Chicago is a larger factor in the country's production of steel bars than in any other interest that have prevailed the past year, product, owing to the large tonnage taken by the agricultural machinery trade, the jobbing distribution, and the general demand of the West. The readjustment in

COMPOSITE STEEL.

Computation for January 1, 1914

Pounds.	Group.	Price.	Extension.
2[illegible]	Bars	1.20	[illegible]000
1[illegible]	Plates	1.20	1.800
1[illegible]	Shapes	1.20	1.800
1[illegible]	Pipe (3½-3)	1.95	2.925
1[illegible]	Wire nails	1.55	2.325
1	Sheets (28 bl.)	1.80	1.800
½	Tin plates	3.40	1.700
10 pounds			15.350
One pound			**1.5350**

(Averaged from daily quotations.)

	1909.	1910.	1911.	1912.	1913.
Jan...	1.9250	1.8625	1.7415	1.5123	1.7737
Feb..	1.8538	1.8475	1.7520	1.4878	1.7625
Mar..	1.6815	1.8475	1.7590	1.4790	1.7646
April.	1.6490	1.8400	1.7600	1.5206	1.7743
May.	1.6050	1.8325	1.7510	1.5590	1.7786
June .	1.6150	1.7955	1.6817	1.5794	1.7719
July .	1.6670	1.7755	1.6701	1.6188	1.7600
Aug..	1.7125	1.7550	1.6394	1.6784	1.7400
Sept.	1.7430	1.7470	1.6090	1.7086	1.7093
Oct...	1.7900	1.7350	1.5461	1.7588	1.6779
Nov..	1.8240	1.7305	1.4930	1.7750	1.6203
Dec..	1.8370	1.7380	1.4812	1.7789	1.5558
Year.	1.7419	1.7922	1.6570	1.6214	1.7241

SCRAP IRON & STEEL PRICES.

	Melting Steel. Pitts.	Bundled Sheet, Pitts.	No. 1 R.R. Wrought, Pitts.	No. 1 Cast, Pitts.	No. 1 Steel, Phila.	Heavy Melt'g. Ch'go.
1912—						
Mar.	12.72	10.80	13.00	12.37	12.20	10.80
April	12.90	11.15	13.00	12.40	13.25	12.10
May	13.25	11.40	13.25	12.40	13.50	12.70
June	13.45	12.00	13.70	13.00	13.50	12.25
July	13.57	12.35	14.10	13.37	13.60	12.15
Aug.	13.60	12.25	14.15	13.35	14.25	12.10
Sept.	14.10	12.25	14.50	13.40	15.25	12.50
Oct.	15.75	12.95	15.80	14.05	15.75	14.00
Nov.	15.35	13.12	16.00	15.00	15.30	13.80
Dec.	15.10	13.15	15.75	15.10	14.75	13.40
Year	13.76	11.92	14.16	13.28	13.82	12.30
1913—						
Jan.	15.00	13.10	15.35	14.65	14.50	12.75
Feb.	14.35	12.00	15.35	14.65	13.25	12.65
Mar.	14.35	11.60	15.35	14.60	13.60	12.50
Apr.	14.25	10.50	15.50	14.50	13.75	12.60
May	13.50	10.00	15.00	14.25	13.25	11.50
June	13.20	9.25	14.25	13.50	11.50	10.75
July	12.50	8.75	13.35	12.30	11.15	10.60
Aug.	12.40	8.25	13.25	12.50	11.85	10.75
Sept.	12.60	8.00	13.00	12.50	12.25	10.60
Oct.	12.25	7.40	13.00	12.40	11.20	10.35
Nov.	11.40	6.75	11.85	12.00	10.30	10.25
Dec.	11.00	6.40	11.65	11.60	9.75	9.25
Year	13.07	9.33	13.91	13.29	12.12	11.21

COMPOSITE PIG IRON.

Computation for January 1, 1914

One ton Bessemer, valley	$14.25
Two tons basic, valley (12.50)	25.00
One ton No. 2 foundry, valley	13.00
One ton No. 2 foundry, Philadelphia	14.50
One ton No. 2 foundry, Cleveland ...	13.50
One ton No. 2X foundry, Buffalo ...	13.00
One ton No. 2 foundry, Chicago	14.50
Two tons No. 2 Southern foundry Cincinnati (13.75)	27.50
Total, ten tons	$135.25
One ton	**$13.525**

Averaged from daily quotations:

	1909.	1910.	1911.	1912.	1913.
Jan...	16.266	17.598	14.375	13.420	17.391
Feb..	15.998	17.215	14.340	13.427	17.140
Mar..	15.414	16.702	14.425	13.581	16.775
April	14.854	16.315	14.375	13.779	16.363
May.	14.854	15.750	14.242	13.917	15.682
June.	15.129	15.320	14.032	14.005	14.968
July.	15.485	15.131	13.926	14.288	14.578
Aug.	16.027	14.727	13.874	14.669	14.565
Sept.	17.041	14.612	13.819	15.386	14.692
Oct...	17.919	14.435	13.692	16.706	14.737
Nov..	17.955	14.415	13.532	17.226	14.282
Dec..	17.776	14.408	13.430	17.475	13.838
Year	16.227	15.552	14.005	14.823	15.418

UNFINISHED STEEL AND IRON BARS.

(Averaged from daily quotations.)

	Billets, Pitts.	Sheet bars, Pitts.	Rods, Pitts.	— Iron bars, deliv — Phila.	Pitts.	Ch'go.
July	21.50*	22.00*	25.00	1.32	1.35	1.31
Aug.	22.15*	22.60*	25.25	1.34	1.38	1.38
Sept.	23.75	24.25*	26.00	1.40	1.46	1.44
Oct.	25.75*	26.25*	28.37	1.55	1.55	1.50
Nov.	26.75*	27.25*	29.90	1.67	1.62	1.55
Dec.	27.00*	27.50	30.00	1.68	1.65	1.55
Year	22.37	23.01	26.15	1.38	1.38	1.33
1913—		*	Premiums for	open-hearth		
Feb.	29.00	30.00	30.00	1.67	1.65	1.59
Jan.	28.40	29.40	30.00	1.68	1.65	1.60
Mar.	29.00	30.00	30.00	1.65	1.65	1.58
Apr.	27.50	28.00	30.00	1.68	1.65	1.58
May	27.00	27.50	30.00	1.68	1.65	1.55
June	26.50	27.50	29.00	1.61	1.65	1.50
July	26.50	27.50	28.50	1.55	1.65	1.50
Aug.	25.75	26.50*	28.00	1.42	1.62	1.44
Sept.	24.00*	25.00*	27.37	1.33	1.59	1.37
Oct.	22.50	23.25	26.50	1.32	1.54	1.27
Nov.	20.50	21.50	26.00	1.30	1.45	1.15
Dec.	20.00	21.00	25.25	1.25	1.37	1.12
Year	25.55	26.13	28.39	1.51	1.59	1.45

* Premiums for Bessemer.

IRON AND STEEL.

bar iron began early in the year, following a decline in wrought scrap, and aggravated in the last half of the year by the withdrawal of the railroads from the market.

At the close of the year prices are at the bottom. Soft steel bars held firm until October, when they began to give way, and at the end of December the Chicago mills are ignoring the Pittsburgh base and quoting prices according to the desirability of the business offered. The sheet business has not suffered so acutely from the falling off in demand.

During all this period of liquidation in prices, the general demand for bars, sheets, store material and other finished products which enter into general consumption, has been far better than the course of prices would indicate. The falling off in tonnage has been almost confined to the lines like railway purchases which are affected by the money market and the high rates of interest that have prevailed the past year.

IRON AND STEEL EXPORTS, GROSS TONS.

	October. 1913.	September. 1913.	October. 1912.	Ten months ending Oct. 1913.
Scrap	6,284	7,697	9,811	78,406
Pig iron	27,817	21,018	29,408	233,855
Billets, sheet bars, etc.	2,846	3,813	29,969	88,563
Wire rods	3,150	1,526	4,167	53,199
Rails	41,159	40,289	26,127	413,724
Steel bars	15,532	15,083	19,056	180,931
Iron bars	884	995	1,958	13,455
Structural	33,377	27,663	24,154	342,708
Hoop, band and scroll	855	1,010	1,960	14,137
Galvanized iron sheets and plates	3,362	3,599	9,200	69,282
All other iron sheets and plates	349	1,094	1,734	20,466
Steel sheets	19,144	20,221	13,932	123,847
Steel plates	17,521	14,134	25,662	201,668
Tin plates	4,246	4,238	5,783	52,867
Barbed wire	7,942	7,108	9,355	66,760
All other wire	8,063	6,013	12,016	90,980
Cut nails	473	186	611	3,152
Wire nails	3,005	2,732	4,330	37,981
All other, including tacks	287	253	290	3,332
Pipes and fittings	20,396	30,149	18,542	261,206
Railroad spikes	1,074	867	1,266	10,298
Bolts, nuts, rivets, washers	1,982	2,105	1,399	19,383
Horse shoes	73	98	61	1,023
Cast radiators	674	1,167	620	7,311
Totals	220,495	213,053	251,411	2,388,524

IRON AND STEEL IMPORTS, GROSS TONS.

	October. 1913.	September. 1913.	October. 1912.	Ten months ending Oct. 1913.
Scrap	2,221	1,292	4,118	40,087
Pig iron	9,613*	11,419	13,388	130,225
Blooms, billets, steel, n.e.s.	2,793	2,274	1,714	20,558
Wire rods	1,215	958	1,897	13,879
Rails	2,738	845	218	7,145
Bar iron	1,753	1,898	3,089	24,612
Structural	328	809	627	10,153
Sheets and plates	29	266	226	2,585
Tin plates	135	180	282	15,737
Totals	20,825	19,941	25,559	264,981

*In detail: Pig iron, 0; ferrosilicon, 306 tons; all other (chiefly ferromanganese 9,307).

IRON AND STEEL.

VALUE OF IRON AND STEEL EXPORTS.

Tonnage and Non-Tonnage.

	1908.	1909.	1910.	1911.	1912.	1913
January	$13,468,058	$10,329,388	$14,513,394	$18,738,391	$18,451,914	$25,141,409
February	14,063,559	10,947,159	13,949,082	18,690,792	21,801,570	24,085,871
March	15,168,155	13,873,746	17,253,503	22,591,991	24,474,799	27,201,197
April	15,455,319	13,058,297	16,529,260	24,916,912	26,789,853	27,123,044
May	11,281,415	12,964,367	17,658,042	20,616,795	28,050,247	26,718,970
June	11,677,944	13,779,736	16,503,204	20,310,053	24,795,802	25,228,346
July	12,085,951	11,866,772	16,108,102	17,454,772	24,917,952	24,170,604
August	12,058,561	14,134,487	17,628,537	20,013,557	25,450,107	23,947,440
September ...	11,221,799	12,966,908	16,776,178	19,875,308	23,286,040	22,831,082
October	11,505,063	14,249,598	17,452,085	20,220,833	25,271,550	25,189,745
November ..	10,895,549	14,434,690	18,594,806	20,823,061	26,406,425	.....
December ...	12,231,741	15,069,246	18,300,710	22,186,996	23,750,864	.....
Totals	$151,113,114	$157,674,394	$201,271,903	$249,656,411	$289,128,420	$251,672,070

EXPORTS OF TONNAGE LINES—Gross Tons.

	1907.	1908.	1909.	1910.	1911.	1912.	1913.
January	102,630	74,353	70,109	118,681	152,362	151,575	249,532
February	87,912	81,773	84,837	110,224	150,919	204,969	241,874
March	112,787	96,681	94,519	124,980	216,360	218,219	257,053
April	132,790	93,285	100,911	117,921	228,149	267,313	260,440
May	91,543	64,041	109,808	135,306	178,589	307,656	242,188
June	92,996	69,770	114,724	120,601	174,247	273,188	243,189
July	122,240	86,796	100,850	127,578	162,855	272,778	237,159
August	118,792	86,244	105,690	131,391	177,902	282,645	209,856
September	114,819	76,732	97,641	119,155	181,150	248,613	213,058
October	123,170	85,766	110,821	129,828	186,457	251,411	220,495
November	116,309	71,130	116,105	155,138	187,554	233,341	.....
December	86,019	77,659	137,806	150,102	190,854	235,931	.....
Totals	1,301,979	964,242	1,243,567	1,540,895	2,187,724	2,948,466	2,388,534

IRON ORE IMPORTS.

	1910.	1911.	1912.	1913.
Jan. ..	284,823	102,600	154,118	175,463
Feb. ..	170,427	94,820	129,693	188,734
Mar. ..	163,633	134,785	157,469	164,865
Apr. ..	206,135	133,900	178,502	174,162
May ..	240,833	217,467	194,482	191,860
June ..	193,415	118,296	180,122	241,069
July ..	248,810	200,845	185,677	272,017
Aug. ..	282,949	175,183	178,828	213,139
Sept. ..	208,892	184,456	180,571	295,424
Oct. ..	219,571	172,459	202,125	274,433
Nov. ..	197,833	128,019	163,017	.....
Dec. ..	173,710	148,902	199,982	.....
.....	.....	.....	.....	.....
Totals	2,591,031	1,811,732	2,104,576	

IRON AND STEEL IMPORTS.

	1910	1911.	1912.	1913.
January.	56,207	33,071	20,008	21,741
February	43,613	20,812	11,622	24,904
March ..	54,176	23,533	15,466	27,247
April	47,698	22,392	12,481	25,743
May	42,569	23,347	15,949	28,572
June	30,322	29,399	21,407	36,597
July	41,933	15,782	17,882	39,694
August ..	36,879	10,944	20,571	18,740
September	30,961	14,039	18,740	19,941
October .	31,455	21,035	25,559	20,825
November	40,585	13,880	24,154	.....
December	31,575	19,665	21,231	.....
Totals.	487,973	256,903	225,072	

RAILROAD EARNINGS.

The following table is compiled from the monthly reports of the Interstate Commerce Commission, and cover all railroads in the United States having gross income of $1,000,000 or over per year. The statements are per mile of road operated, and show gross revenue from operations, operating expenses and net operating revenue.

	1911-12			1912-13			1913-14		
	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.
July ...	$1,025	$698	$327	$1,113	$750	$363	$1,161	$814	$348
Aug. ...	1,119	726	393	1,211	776	435	1,219	831	388
Sept. ..	1,137	725	411	1,206	775	430	1,237	832	405
Oct. ...	1,175	749	425	1,318	831	487			
Nov. ...	1,093	734	360	1,218	809	409			
Dec. ...	1,046	720	326	1,165	803	362			
Jan. .	932	728	203	1,091	807	285			
Feb. .	964	710	254	1,015	756	260			
Mar. ...	1,051	746	305	1,085	803	283			
April	974	717	257	1,068	806	263			
May .	1,030	735	295	1,154	834	321			
June .	1,075	737	339	1,140	803	337			
Totals.	$12,605	$8,718	$3,888	$13,787	$9,554	$4,233			

The gross per mile of line in September was the largest for any September; the net was the largest for any september, except September, 1911 and 1912, and showed only slight decrease from those months. The operating expenses showed a correspondingly large increase.

Return on Property Investment.

The following is a summary of the figures submitted representing the combined operations of forty-nine railroads:

	1903	1910.	1913.	Inc. of Year 1913 over 1903.	1913 over 1910.
Property investment	$4,300,477,902	$5,620,709,023	$6,280,571,611	46.04	11.74
Net operating income	251,437,577	353,065,386	336,754,065	33.93	*462
Per cent. on property investment	5.85	6.28	5.36	*8.38	*14.65
Net Income Return on Capital Obligations.					
Total capital obligations.	$4,281,918,452	$6,019,803,731	$6,389,535,638	49.22	6.14
Net corporate income (plus interest)	249,598,191	377,299,522	362,470,794	45.22	*3.93
Per cent. on total capital obligations	5.83	6.27	5.67	*2.74	*9.57
Net Income on Capital Stock					
Total capital stock	$1,897,834,812	$2,376,932,805	$2,559,782,387	34.88	7.69
Net corporate income	148,546,657	230,507,061	206,591,864	39.08	*10.38
Per cent. on stock	7.83	9.70	8.07	3.07	*16.80
Operating Results.					
Operating revenues	$870,783,002	$1,237,344,124	$1,424,119,991	63.54	15.09
Operating expenses	584,718,967	832,363,160	1,022,085,457	74.80	22.79
Net operating revenue	286,064,035	404,980,964	402,034,534	40.54	*0.73
Comparative Measure of Service.					
Tons carried one mile	90,123,280,803	133,705,073,662	156,799,754,183	73.98	17.27
Pass. carried one mile	10,803,110,279	14,640,158,274	16,055,486,746	48.62	9.67
Miles of track owned	87,467.45	102,286.22	107,933.49	23.40	5.52

*Decrease.

SPELTER.

SPELTER IN 1913.

The year opened at 7.15 f.o.b. East St. Louis, which high basis had been created during the closing months of 1912 by a misconception of the real situation. Prices had been extravagantly bid up on the fear that the natural gas failure in some of the smelting districts would greatly affect production. Late in January a prominent producing interest abandoned the effort to keep up prices, in face of a poor demand, and price began to decline. Consumers were found to have overstocked and overbought for future deliveries on the fears alluded to above. The decline was continuous and rapid to

6.07½ end February. 5.40 end April
5.80 end March 5.20 end May.

4.97½ middle June.

A slight recovery then occurred on the passing of dividend by a prominent producer and the realization that fully one-third of our output (say around 100,000 tons) could not be produced at a profit at five cents, and market on good buying advanced by end of June to 5¼ cents, and on reports of reduced output by reason of the unprofitableness of the business to the bulk of the producers, market still further improved to 5.40 by end of July. This rise was increased on a good demand to 5.80 by end of August. At about this time the Government statistics which had been strangely late in coming out were published. They showed that stocks in producers' hands which were down to the extremely small total of 4,522 tons January 1st, had increased to 21,856 tons July 1st, that consumption which the last half of 1912 was 181,326 tons, had dropped in the first half of this year to 153,073 tons; and production which had been 172,310 tons the last half of 1912, had increased slightly to 180,213 tons.

These statistics explained why from scarcity at beginning of the year and price then at 7.15 f.o.b. East St. Louis, the market steadily declined on reduced consumption, and slightly increased production to 4.95c June 17th. The amount of stocks shown July 1st was greater than expected.

The effect of the statistics changed the course of the market and price by end of Sept. had declined to 5.45, by end of Oct. 5.22½, by end of Nov. 5.07½, and to 4.95 to 5c early December.

In the closing week of the year there was good buying and recovery to 5.15, but market closes irregular and unsettled by the unfavorable Government statistics issued on last day of the year. The statistics show that the production of spelter in 1913 was 345,575 tons, an increase of 6,769 tons over 1912; that the consumption was 300,491 tons, a decrease of 39,850 tons as compared with 1912 and that the stocks in smelters hands on December 15th amounted to 36,395 tons which is an increase during the year of 31,873 tons.

In the following table we give the production and consumption for the past seven years together with the stocks at the close of each year.

	Production	Consumption	Stocks Dec. 31
1907	249,860	226,969	26,364
1908	210,424	214,167	19,613
1909	255,760	270,730	11,167
1910	269,184	245,884	23,201
1911	286,526	280,059	9,049
1912	338,806	340,341	4,522
1913	345,575	300,491	36,395

The imports and exports of spelter during the past seven years have been as follows

	Imports	Exports — Dom.	Exports — D'wb'k.	Exports — For'gn
1907	1,788	563	1,555	9
1908	881	2,640	1,234	8
1909	9,454	2,566	....	334
1910	1,960	3,990	4,486	4,758
1911	609	6,872	3,079	11,276
1912	11,115	6,634	1,219	6,286
1913	6,056	7,714	5,751	5,802

The imports and exports of zinc ore were as follows:

	Imports Total	Imports Zinc Content	Exports
1907	103,117	.....	20,352
1908	53,757	.....	26,108
1909	116,269	.....	12,455
1910	87,406	42,356	19,711
1911	78,341	31,640	18,281
1912	43,940	17,567	23,349
1913	28,541	13,036	17,713

The statistics given above are based on tons of 2,000 lbs.

The course of the market during 1913 is shown in the following table which gives the highest, lowest and average monthly price of spelter at East St. Louis:

SPELTER.

1913	Highest.	Lowest	Average.
January	7.17½	6.60	7.04
February	6.60	6.05	6.25
March	6.25	5.75	6.08
April	5.85	5.40	5.59
May	5.40	5.20	5.31
June	5.15	4.95	5.05
July	5.45	5.15	5.23
August	5.80	5.45	5.64
September	5.75	5.42½	5.65
October	5.45	5.15	5.27
November	5.22½	5.05	5.15
December	5.15	4.97½	5.03
Year	7.17½	4.95	5.61

SPELTER AND LEAD PRICES IN DECEMBER.

	SPELTER		LEAD					
Day.	St. Louis.	New York.	London.			New York.	St. Louis.	London.
1.	5.07½	5.25	20	12	6	4.25	4.10	18 0 0
2.	5.02½	5.17½	20	12	6	4.10	3.97½	17 15 0
3.	5.00	5.18¾	29	12	6	4.10	3.97½	17 10 0
4.	5.00	5.18¾	20	12	6	4.10	3.97½	17 10 0
5.	5.00	5.18¾	20	17	6	4.10	3.97½	17 12 6
6.								
7.								
8.	5.00	5.18¾	21	0	0	4.10	3.97½	17 10 0
9.	5.00	5.18¾	21	2	6	4.00	3.87½	17 12 6
10.	5.00	5.18¾	21	5	0	4.00	3.85	17 17 6
11.	5.00	5.18¾	21	5	0	4.00	3.85	18 10 0
12.	5.00	5.18¾	21	5	0	4.00	3.85	17 17 6
13.								
14.								
15.	5.00	5.18¾	21	5	0	4.00	3.85	17 17 6
16.	5.00	5.20	21	7	6	4.00	3.85	18 0 0
17.	5.00	5.20	21	5	0	4.00	3.85	17 17 6
18.	5.02½	5.20	21	7	6	4.00	3.87½	17 17 6
19.	5.02½	5.20	21	10	0	4.00	3.87½	17 17 6
20.								
21.								
22.	5.02½	5.20	21	10	0	4.02½	3.90	17 15 0
23.	5.00	5.20	21	10	0	4.02½	3.90	17 15 0
24.	5.00	5.20	21	7	6	4.10	3.97½	17 15 0
25.								
26.	5.07½	5.25				4.10	3.97½	
27.								
28.								
29.	5.07½	5.32½	21	12	6	4.17½	4.02½	17 15 0
30.	5.15	5.35	21	12	6	4.17½	4.05	17 17 6
31.	5.12½	5.35	21	12	6	4.17½	4.10	18 2 6
High	5.15	5.40	21	12	6	4.25	4.10	18 10 0
Low	4.975	5.125	20	12	6	4.00	3.85	17 10 0
Av'ge	5.027	5.217	41	4	0	4.069	3.937	17 16 5

Annual Averages.

	New York	St. Louis.
1913	5.80	5.61
1912	7.11	6.93
1911	5.91	5.70
1910	5.66	5.42
1909	5.52	5.39
1908	4.74	4.62
1907	6.20	5.90

JOPLIN ORE MARKET IN 1913.

December closed the year with the lowest average prices for both lead and zinc ores that prevailed for the entire year. The average for blende ores was approximately $37, for Calamine $21 and for lead $47.50. The entire month was a period of depression for the mining industry and a number of movements were undertaken to curtail the output and prevent any further accumulation of stocks. Likewise a number of mines again reduced wages thus creating further dissatisfaction among laborers.

Yet despite the unfavorable price conditions shipments were fairly large for all three ores. This was due to the demand for money to meet year end and month end obligations falling due so that operators sacrificed to meet these demands and unloaded more tonnage than would otherwise have been sold. The average shipment of blende ores for the month was 5,254 tons weekly. Calamine averaged 374 tons and lead 956 tons.

Surplus stocks strange as it may seem are approximately the same at the close of 1913 as in 1912. It is estimated the zinc ore stocks amount to 5,000 tons and lead ore stocks at 1,200 tons.

More operators turned their attention to prospecting this month and either abated their operating activities or completely closed down till better price conditions prevailed. It is conservatively estimated that nine-tenths of the new activity in prospecting is being devoted to the soft ground and richer deposits where the cost of production is under $40 per ton of concentrate.

The year closed with a loss in blende ore production of 12,636 tons as compared with 1912. The loss in average price was $10.54 per ton and the total loss in valuation was $3,497,918, a very heavy burden for the district to bear. Calamine on the

SPELTER.

other hand held its own as far as production was concerned and showed a gain of 392 tons but a loss in average price of $4.47 and a loss in valuation of $76,583.

On the other hand lead ore reduction broke all previous records in tonnage reaching 47,661 tons, an aggregate greater than 1911 when the output passed 45,900 tons, the previous high record for this field. The loss in prices, however, brought down the valuation $47,273 below that of 1912 and the average price was $3.93 less than that of 1912.

December ore shipments are shown in the following tables:

Blende Ores.

	Tons	Price	Value
Dec. 6	4,230	$37.00	$156,510
Dec. 13	5,707	37.00	211,159
Dec. 20	6,098	36.92	225,053
Dec. 27	4,981	37.43	186,486
Total for 1913.	267,666	43.05	11,523,497

Calamine Ores.

	Tons	Price	Value
Dec. 6	317	$20.14	$6,388
Dec. 13	427	21.34	9,113
Dec. 20	268	22.00	5,896
Dec. 27	475	22.23	10,558
Total for 1913.	19,498	22.64	441,530

Lead Ores.

	Tons	Price	Value
Dec. 6	835	$48.61	$40,596
Dec. 13	1,003	46.75	46,897
Dec. 20	1,031	47.54	49,022
Dec. 27	956	47.45	45,379
Total for 1913.	47,661	52.09	2,492,976

Average prices per ton of blende, Calamine, and lead ores for 1913.

	Blende	Calamine	Lead
Jan. 4	$53.38	$30.11	$52.13
Jan. 11	53.57	30.95	52.56
Jan. 18	53.35	31.66	53.00
Jan. 25	52.63	31.86	53.81
Feb. 1	47.37	29.25	53.34
Feb. 8	46.25	25.26	53.10
Feb. 15	46.26	30.14	52.80
Feb. 22	46.41	26.79	53.88
Mar. 1	45.42	26.83	52.89
Mar 8	45.72	25.43	53.29
Mar. 15	47.07	18.73	52.58
Mar. 22	48.32	25.59	53.68
Mar. 29	40.36	28.49	53.18
Apr. 5	40.31	18.88	53.45
Apr. 12	41.50	21.89	52.44
Apr. 19	40.70	23.46	51.85
Apr. 26	40.77	22.56	52.04
May 3	40.07	24.73	52.92
May 10	39.85	22.10	52.86
May 17	40.00	21.81	53.22
May 24	41.29	21.62	51.58
May 31	45.76	23.10	51.45
June 7	39.83	22.60	50.35
June 14	39.06	22.61	51.40
June 21	40.27	18.63	51.89
June 28	41.00	19.50	52.00
July 5	40.07	24.25	50.35
July 12	40.02	21.65	51.93
July 19	41.00	26.26	51.90
July 26	39.30	22.63	52.02
Aug. 2	40.08	22.44	52.37
Aug. 9	43.69	21.98	53.50
Aug. 16	44.00	23.74	53.95
Aug. 23	47.00	23.86	54.00
Aug. 30	48.00	24.89	56.00
Sept. 6	47.50	24.90	57.38
Sept. 13	46.50	24.65	57.62
Sept. 20	44.10	23.00	56.47
Sept. 27	43.50	22.52	57.02
Oct. 4	43.50	21.00	53.50
Oct. 11	40.50	21.95	52.50
Oct. 18	39.50	20.00	51.78
Oct. 25	39.41	24.08	51.15
Nov. 1	39.43	22.40	51.39
Nov. 8	40.88	22.74	51.19
Nov. 15	40.49	21.99	51.51
Nov. 22	41.00	23.32	51.07
Nov. 29	37.70	20.00	51.40
Dec. 6	37.00	20.14	48.61
Dec. 13	37.00	21.34	46.75
Dec. 20	36.92	22.00	47.54
Dec. 27	37.43	22.23	47.45
Year	43.05	22.64	52.09

SPELTER PRODUCTION IN 1913.

Figures of U. S. Geological Survey Show Increase in Output and Large Stocks on Hand.

The annual preliminary statement just issued by the United States Geological Survey shows that the output of spelter in 1913 established a new record, exceeding that of 1912 by a fair margin, though falling far short of the figure indicated by the phenomenal production of the first half of the year. The increase was altogether from domestic sources, as the production from foreign ores was the smallest since 1906, due, of course, to the strife in Mexico. The production during the first half of the year kept on at an increased rate over that of 1912, and somewhat exceeded the demand as shown by the increase in stocks from 4,522 tons on January 1 to 21,856 tons June 30. The production slowed down materially during the last half of 1913, but the demand failed to even a greater extent, as shown by the increased spelter stocks to 36,393 tons, the greatest perhaps in the history of the industry. The extent to which production was curtailed is shown by the fact that only about three-fourths of the retort capacity available for ore was in active operation during December.

The following figures have been compiled without change by C. E. Siebenthal of the Geological Survey, from reports furnished by all operating smelters of zinc ores, showing their output for the first eleven months of the year and their estimated production for December. Figures showing the imports and exports for eleven months were obtained from the Bureau of Foreign and Domestic Commerce and to these figures estimates for December have been added.

Production.

The production of primary spelter from domestic ore in 1913 is estimated at 333,667 short tons and from foreign ore at 8,908 tons, a total of 345,575 tons, worth, at the average St. Louis price, $39,395,550, compared to a total of 338,806 tons in 1912, worth $46,755,228 and made up of 323,907 tons of domestic origin and 14,899 tons of foreign origin. The production of spelter from both domestic and foreign ores, apportioned according to the States in which it was smelted, by six-month periods, was as follows:

Spelter production, 1912-1913, by States, in six-month periods.

State—	1912.		1913.	
	First	Second	First	Second
Illinois	44,224	44,065	53,524	52,424
Kansas	52,485	48,376	42,645	33,846
Oklahoma ..	36,010	41,584	43,253	39,755
Other States	33,777	38,109	40,791	39,337
Total	166,496	172,134	180,213	165,362
Yearly total	338,630		345,575	

While the output of each State was less in the latter half of the year than in the earlier, Kansas and Oklahoma had the greatest losses.

The total production of spelter is equivalent to the output of 81,312 average retorts operating continuously through the year on 60 per cent. zinc concentrates. The retort capacity, available for ore, of the plants active in 1913 was, at the beginning of the year, about 101,000 retorts. Many of them, of course, were used on low-grade ores, lessening their capacity. To these were added during the year 5,850 retorts, making about 107,000 retorts available for ore during the latter part of the year. The capacity of the zinc smelters by States, together with the additions now planned for 1914, and the average number of retorts in active operation during December, 1913, is given in the following table:

Zinc-smelting capacity, 1913.

State.	Total retorts end of 1913	Retorts to be added in 1914	Average number of retorts operated in December 1913
Illinois	29,268	9,032	27,067
Kansas	33,862	....	15,896
Oklahoma	27,416	....	23,024
Other States..	25,760	3,456	23,696
Total	116,306	12,488	89,683

It will observed that only three-fourths of the total smelting capacity was in operation during December, 1913. In Kansas more than half of the total retort capacity was idle. In Oklahoma one-sixth of the capacity was idle, and smaller proportions in the other States. Coupled with this curtailment of operations there was a slowing down in the construction of additional capacity. At Hegeler Bros. smelter, 1,800 retorts planned to be finished in 1913 will not go into operation until the middle of

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1914. Of the 4,560 retorts to be added in 1913 to the Mineral Point smelter at Depue, only 2,280 were actually constructed and 2,280 will be added some time in 1914. Operations on the Granby smelter at East St. Louis are temporarily suspended, but 3,240 retorts will be completed and put into operation in 1914. Matthiesson & Hegeler will add 912 retorts at La Salle, Ill., and the American Zinc Co. of Illinois, at Hillsboro, Ill., will add 800 retorts in 1914. The latter company is constructing a large cement reservoir for the subaqueous storage of fuel.

No new retorts are planned in Kansas or Oklahoma for 1914. The construction work on the smelter of the American Zinc and Chemical Co. at Langeloth, Pa., is being pushed as much as possible and it is hoped to have the initial unit, consisting of 2 Hegeler roasting kilns, with the corresponding acid plant, and 4 blocks containing 3,456 retorts, in operation some time next summer. This plant will be enlarged as required by the closing down of affiliated Oklahoma smelters as the gas supply fails. The Prime Western Spelter Co. is constructing zinc roasting furnaces and an acid plant at Tiltonville, Ohio. There will be 2 kilns with a monthly capacity of 2,000 tons of ore. The construction of spelter furnaces in connection has been indefinitely postponed.

Imports and Exports.

Imports of zinc ore were approximately 28,541 short tons, containing about 13,036 tons of zinc, compared with 43,940 tons of ore, containing 17,567 tons of zinc, imported in 1912. Of the zinc ore imported, 18,110 tons, about 63 per cent., came from Mexico, compared with 35,925 tons, or 80 per cent., imported from Mexico in 1912. The exports of domestic zinc ore were 17,713 short tons, valued at $632,000, compared with 23,349 tons in 1912.

The imports of spelter are estimated at 6,056 short tons, valued at about $656,600, compared with 11,115 tons in 1912. A large part of the foreign spelter, 5,302 tons to be exact, was imported in the month of January, when spelter was worth 7.15 cents a pound. Within a month the price had dropped a full cent on the pound. The imports of zinc dust were 2,174 short tons, valued at $212,750, against 2,736 tons in 1912. Exports of domestic spelter are estimated at 7,714 short tons, worth $945,523, compared with 6,634 tons in 1912. The exports of foreign zinc decreased from 6,286 short tons in 1912 to approximately 5,802 short tons in 1913. During the first nine months of the year there were also exported under drawback articles manufactured from 5,751 tons of foreign zinc on which duty had been paid, compared to 1,219 tons in 1912.

Consumption.

The apparent domestic consumption of spelter in 1913 may be computed as follows: The sum of stock on hand at smelters at the beginning of the year, 4,522 tons, plus the imports, 6,056 tons, and the production, 345,575 tons, gives the total available supply, 356,153 tons. From this there is to be subtracted the exports of domestic spelter, 7,714 tons, the exports of foreign spelter, 5,802 tons, the exports under drawback, 5,751 tons, and the stock on hand at smelters at the close of the year (to be exact, on December 15), 36,395 tons, a total of 55,662 tons, leaving a balance of 300,491 tons as the apparent domestic consumption. This calculation takes no account of the stocks of spelter held by dealers or consumers. On comparing the consumption in 1913 with the 340,341 tons consumed in 1912, the 280,059 tons in 1911, the 245,884 tons in 1910, and the 270,730 tons in 1909, it appears that the consumption has returned to the normal after the phenomenally large consumption of 1912. In other words, the large concealed stocks at the close of 1912 satisfied the demands of the market in the early part of 1913, with the result that stocks of spelter piled up at the works.

Prices.

Spelter opened at St. Louis in January at 7.17 cents a pound, the maximum figure of the year. This price held until the middle of the month when, possibly influenced by the importation of foreign spelter of which over 5,000 tons entered in January, it took a sharp drop which continued with the exception of a slight break in the early part of March, until the middle of June when spelter reached 4.97½ cents a pound, the lowest price of the year. A rise then followed which brought spelter to 5.85 cents a pound during the closing week of August. A decline set in which left spelter bringing

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about 5.05 to 5.10 cents per pound at the close of the year. The average price of the metal for the year at St. Louis was 5.6 cents a pound.

The London spelter market opened at £26 5s per long ton (5.7 cents a pound), declined in March to £24 10s per long ton (5.33 cents a pound), rose to £25 15s (5.6 cents a pound) in the latter part of April, then took a big drop to £20 7s 6d (4.43 cents a pound) in July, near the minimum price of the year. Through the latter half of the year the price of spelter fluctuated slightly but remained nearly level, closing at about £21 7s 6d (4.65 cents a pound). The average London price for the year was £22 15s 10d per long ton (4.95 cents a pound).

SHEET ZINC PRICE CHANGES.

The changes in the price of sheet zinc since March 21, 1912 are shown in the following table together with the price of spelter on the same dates:

	Sheet Zinc.	Spelter, St. Louis.
1912—		
March 21	8.65	6.67½
July 8	8.75	7.02½
September 12	8.90	7.37½
September 25	9.00	7.42½
1913—		
February 3	8.75	6.60
February 17	8.50	6.20
February 26	8.25	6.07½
March 29	8.00	5.80
April 22	7.75	5.45
May 20	7.50	5.30
June 7	7.25	5.10
June 26	7.00	5.05
July 23	7.25	5.20
July 30	7.50	5.45
August 15	7.75	5.65
August 29	8.00	5.80
October 6	7.75	5.37½
October 17	7.50	5.17½
December 3	7.25	5.00
1914—		
January 23	7.50	5.12½

The receipts of lead at St. Louis for the year 1913 were 1,314,250 pigs, and the shipments for the year were 2,100,530 pigs.

The receipts of spelter at St. Louis for the year 1913 were 4,151,260 slabs, and the shipments of spelter were 4,257,760 slabs.

LEAD IN 1913.

The year opened with lead quoted at 4.35c New York and the market remained unchanged through January, February and March. In February surprise was expressed that lead should have held unchanged in the face of decline in other metals, but the control of a large portion of the supply by the A. S. & R. Co. gives them a control of the market, and in consequence of the fact that no current statistics are available left the actual situation as it generally is, a mystery, which was not in any way cleared up by a director of the Trust being quoted late in February as saying that his Company had oversold their March production, and had practically no stock of lead on hand. On April 22nd an advance was made to 4½c but to the astonishment of the trade within two weeks the price was dropped again to 4.35c for reasons best known to the A. S. & R. Co. Prices remained unchanged until July 29th when price was advanced to 4½c again and on good buying largely stimulated by prospect of a strike in the So. Missouri mines advanced to 4.75c Aug. 15th. The strike proved to short affair, and with the curtailment in consumption of metals generally that at that time began to assert itself, the Trust control had to bow to the situation and the market declined steadily commencing October 1st until the price reached 4.00c New York on December 9th. At this level the demand improved which caused the market to recover during the last two weeks of the year to 4.15c.

The changes in the trust prices during 1913 are given below:

1913—			
January 1, opening price			4.35
April 22	Advanced	15c	to 4.50
May 5	Reduced	15c	to 4.35
July 29	Advanced	15c	to 4.50
Aug. 15	"	25c	to 4.75
Oct. 1	Reduced	15c	to 4.60
Oct. 8	"	10c	to 4.50
Oct. 16	"	15c	to 4.35
Nov. 26	"	10c	to 4.25
Dec. 2	"	15c	to 4.10
Dec. 9	"	10c	to 4.00
Dec. 24	Advanced	10c	to 4.10
Dec. 29	"	5c	to 4.15

LEAD.

The monthly average prices in New York for the past five years were as follows:

	1909.	1910.	1911.	1912.	1913.
Jan.	4.20	4.70	4.50	4.44	4.35
Feb.	4.10	4.70	4.50	4.04	4.35
Mar.	4.00½	4.61	4.50	4.07	4.35
April	4.15½	4.50	4.50	4.20	4.40
May	4.28	4.42	4.50	4.20	4.36
June	4.35	4.40	4.50	4.39½	4.35
July	4.35	4.40	4.50	4.73	4.37
Aug.	4.38	4.40	4.50	4.56½	4.63
Sept.	4.40	4.40	4.50	5.05	4.75
Oct.	4.40	4.40	4.30	5.10	4.45
Nov.	4.40	4.44	4.32	4.69	4.34
Dec.	4.56	4.50	4.45	4.36	4.06
Year	4.29¾	4.49	4.46	4.48½	4.40

The lead market in Europe was firm throughout the year owing principally to the curtailment of supplies from Mexico and the average price was the highest with one exception (1907) in over 20 years. The average was £18 14 5 per ton equal to about 4.05c per lb.

The following comparison shows how the difference between the price of lead in New York and London has decreased during the last two years, which is an important feature owing to the reduction in the duty from 2⅛c per lb. to 25% ad valorem.

	Approximate Annual Averages		
	New York.	London.	Difference.
1904	4.32c	2.60c	1.72c
1905	4.70	2.98	1.72
1906	5.66	3.77	1.89
1907	5.35	4.15	1.20
1908	4.23	2.93	1.30
1909	4.30	2.83	1.47
1910	4.49	2.80	1.69
1911	4.46	3.01	1.45
1912	4.48	3.89	.59
1913	4.40	4.05	.35

According to the statistics compiled by the U. S. Geological Survey the production of refined lead from foreign and domestic ores in 1913 was approximately 466,843 tons, a decrease of 14,051 tons as compared with 1912, as follows:

	1913.	1912.	Alteration.
Desilverized	256,458	221,480	+34,978
Soft lead	156,013	171,037	—15,024
Foreign	54,372	88,377	—34,005
Total	466,843	480,894	14,051

As shown above the decrease was due to the falling off in the production of foreign lead, domestic production actually increasing about 20,000 tons.

The production from domestic and foreign ores in the past ten years is given below:

	Domestic ores.	Foreign ores.	Total Production.
1903	290,194	88,324	378,518
1904	308,603	95,850	404,453
1905	318,509	80,793	399,302
1906	326,200	68,546	404,746
1907	352,381	61,008	413,389
1908	311,666	84,898	396,564
1909	352,839	94,070	446,901
1910	375,402	94,870	470,272
1911	391,995	94,984	486,979
1912	392,517	88,377	480,894
1913	412,471	54,372	466,843

Accurate statistics covering the domestic consumption of lead are unobtainable owing to the refusal of the smelters to report what stocks of domestic lead they are carrying, but the U. S. Geological Survey shows that there was available for consumption 421,774 tons in 1913 as compared with 388,148 tons in 1912. It would be absurd to suppose that the actual consumption in 1913 was 43,626 tons greater than in 1912 and consequently there must have been a very large increase in surplus stocks. The decline in prices during the past few months from 4.75 to 4.15 tends to confirm this.

The amount of lead available for domestic consumption (stocks disregarded) in the past ten years has been as follows:

1904	319,543
1905	347,015
1906	376,300
1907	373,500
1908	317,651
1909	370,013
1910	379,196
1911	385,319
1912	388,148
1913	421,774

The Payne Die Casting Co., Indianapolis, advises it is making a specialty of die-casting red and yellow brasses and bronzes. Castings have been produced commercially several months previous to incorporation. Facilities are being enlarged and the company is in the market for die shop equipment, furnaces and the like.

PRODUCTION OF LEAD IN 1913.

Preliminary Figures Show a Considerable Decline from the Output of 1912.

An estimate of the production of refined lead in the United States in 1913 has been compiled by C. E. Siebenthal, of the United States Geological Survey, from reports made by all lead refineries and soft-lead smelters in operation during the year. These reports cover actual production for the first ten or eleven months and an estimate for the remainder of the year, and from them the figures of production are made up without change. The statistics of imports, exports, and lead remaining in warehouse have been taken from the records of the Bureau of Foreign and Domestic Commerce for eleven months, the figures for December having been estimated.

During the year three new lead furnaces were completed at the smelter of the International Smelting & Refining Co. at Tooele, Utah, giving the plant a capacity of 1,250 tons daily. The Balbach Smelting & Refining Co. removed its lead refinery from the former location to a new site on Newark Bay and doubled its equipment and capacity. It is reported in the mining press that a 100-ton lead stack is to be built in the Warren district of Arizona to handle the output of the Shattuck mine.

Production.

The total production of refined lead, desilverized and soft, from domestic and foreign ores in 1913 was approximately 466,843 short tons, worth at the average New York price, $41,082,184, compared with 480,894 tons, worth $43,280,460, in 1912, and 486,979 tons in 1911. These figures do not include an estimated output of 16,338 tons of antimonial lead, against 13,552 tons in 1912 and 14,078 tons in 1911. Of the total production, desilverized lead of domestic origin, exclusive of desilverized soft lead, is estimated at 256,458 tons, against 221,480 tons in 1912; and desilverized lead of foreign origin at 54,372 tons, compared with 88,377 tons in 1912. The production of soft lead, mainly from Mississippi Valley ores, is estimated at 156,013 tons, compared with 171,037 tons in 1912.

The final figures of production of soft lead are likely to show an increase of a few thousand tons over those here given, for the reason that the argentiferous lead smelters and refineries undoubtedly treated more or less soft lead from the Mississippi Valley which is not distinguished from silver-lead ores in their preliminary estimates. It may be, with these additions, that Missouri will retain first place in the year's output of refined lead. In the mine production of lead, Missouri lost first place to Idaho. There was a marked falling off in the production of desilverized lead of foreign origin, owing to the disturbed conditions in Mexico, but this loss was more than made up by the increased output of domestic desilverized lead.

Imports and Exports.

The imports of lead are estimated at 9,878 short tons of lead in ore, valued at $490,060; 46,888 tons of lead in base bullion, valued at $2,347,148; and 41 tons of refined lead, valued at $3,655—a total of 56,717 tons, compared with 83,560 tons in 1912. Of the 1913 imports, 47,000 tons, or about 83 per cent., came from Mexico; over 4,000 tons from German East Africa, and the remainder chiefly from South America. The exports of foreign lead (lead of foreign origin smelted or refined in the United States) show a decrease of about a third, being estimated at 51,214 tons, against 76,226 tons in 1912. The imports of type metal (antimonial lead) were 554,749 pounds, containing 457,466 pounds of lead and valued at $19,869, all imported in the first half of the year. During the second half of the year lead has been so nearly on a parity with foreign lead that it was not profitable to import foreign material on which duty must be paid.

Lead Available for Consumption.

The amount of lead available for consumption during 1913 may be estimated by adding to the stock of foreign lead (domestic stocks are not known) in bonded warehouses at the beginning of the year (10,492 short tons) the imports (56,717 tons) and the domestic production (412,471 tons), making an apparent supply of 479,680 tons. From this is to be subtracted the foreign lead exported from warehouse (44,000 tons), the foreign lead exported in manufactures under drawback (7,214 tons in nine months), the deduction by liquidation (391 tons), and the stock in bonded warehouses at the close of the year (assumed to be the same as at the close of November, 6,301 tons), leaving

LEAD.

as available for consumption 421,774 tons, which by comparison with 388,148 tons in 1912, with 385,319 tons in 1911, and 379,196 tons in 1910 seems to be an excessive figure, making it seem very probable that in lead, as in zinc, there has been a large increase in smelter stocks. The relatively high price of lead in Europe induced the exportation of lead of foreign origin faster than it was smelted and refined in this country, as shown above by the decrease of stocks in bonded warehouses from 10,492 tons January 1 to 6,301 tons November 30, showing that the increase in smelter stocks was made up wholly of domestic lead. The foreign lead remaining in warehouse at the close of November 1913, was distributed as follows: At El Paso, 826 short tons; at St. Louis, 49 tons; at New York, 5,427 tons.

Prices.

Lead began the year at New York with a price of 4.35 cents a pound and held at practically that figure throughout the first seven months of the year. A sharp rise beginning late in July carried the price to 4.85 cents a pound in the last week of August, the maximum price of the year. A steady decline then brought the price to 4 cents a pound by the middle of December, the lowest price of the year, and at about this figure the year closed. The average New York price for the year was 4.4 cents a pound, compared with the average of 4.5 cents a pound in 1912 and in 1911.

The London price of lead started at £17 17s. 6d. a long ton (3.87 cents a pound) and gradually dropped until on March 10 the minimum for the year was reached at £15 8s. 9d. a long ton (3.33 cents a pound). From this point there was a rapid recovery until June 19, when the high point for the year was reached, lead selling for £21 10s. a long ton (4.65 cents a pound). There was a drop of about half a cent a pound early in July, which was recovered by the close of the month, and from then until the middle of November the price remained practically stationary. During the latter half of November and early December there was another decline which brought the price down to £17 17s. 6d. a long ton (3.87 cents a pound), and the market closed at about this figure. The yearly average price of lead at London was £18 15s. 8d. a long ton (4.06 cents a pound).

LEAD (Monthly Averages).

	—New York*—			—St. Louis—		
	1911.	1912.	1913.	1911.	1912.	1913.
Jan.	4.50	4.44	4.35	4.36	4.34	4.20
Feb.	4.50	4.04	4.35	4.29½	3.99	4.20
Mar.	4.50	4.07	4.35	4.25	4.06	4.21
Apr.	4.50	4.20	4.40	4.29	4.14	4.25½
May	4.50	4.20	4.36	4.24	4.09	4.22
June	4.50	4.39½	4.35	4.30	4.31	4.21
July	4.50	4.73	4.37	4.42	4.60	4.25
Aug.	4.50	4.56½	4.63	4.43½	4.46	4.56
Sep.	4.50	5.05	4.75	4.37	4.94	4.62
Oct.	4.30	5.10	4.45	4.18	4.91	4.31
Nov.	4.32	4.69	4.34	4.23	4.50	4.18
Dec.	4.45	4.36	4.06	4.36	4.19	3.94
Year	4.46	4.48½	4.40	4.31	4.38	4.26

SPELTER (Monthly Averages).

	—New York—			—St. Louis—		
	1911.	1912.	1913.	1911.	1912.	1913.
Jan.	5.60	6.55	7.23	5.35	6.40	7.04
Feb.	5.70	6.70	6.49	5.40	6.53	6.25
Mar.	5.67	6.93	6.29	5.46	6.74	6.08
Apr.	5.54	6.87	5.79	5.30	6.66	5.59
May	5.52½	6.89	5.51	5.22	6.71	5.31
June	5.67	7.05	5.23½	5.44	6.85½	5.05
July	5.79	7.23	5.41	5.59	7.04	5.23
Aug.	6.04	7.13	5.80	5.88	6.94	5.64
Sep.	6.04	7.55	5.83	5.87	7.37	5.65
Oct.	6.24	7.61	5.47	6.07½	7.39	5.27
Nov.	6.63½	7.50	5.34	6.52	7.32	5.15
Dec.	6.51	7.36	5.22	6.28	7.19	5.03
Year	5.91	7.11	5.80	5.70	6.93	5.61

WATERBURY AVERAGES.

	— Copper —			— Spelter —		
	1911.	1912.	1913.	1911.	1912.	9913.
Jan.	12.87½	14.50	17.00	5.77	6.78	7.56
Feb.	12.75	14.50	15.50	5.78	6.85	6.81
Mar.	12.50	15.00	15.12½	6.01	7.17	6.56
Apr.	12.50	16.00	15.75	5.85	7.07	6.08
May	12.37½	16.37½	15.87½	5.76	7.13	5.77
June	12.62½	17.50	15.37½	5.89	7.25	5.50
July	12.75	17.75	14.75	6.11	7.46	5.61
Aug.	12.75	17.75	15.62½	6.29	7.34	5.99
Sep.	12.62½	17.87½	16.87½	6.29	7.72	6.13
Oct.	12.59	17.75	16.87½	6.49	7.83	5.74
Nov.	12.87½	17.75	16.25	6.90	7.74	5.60
Dec.	12.87½	17.75	15.00	6.81	7.65	5.44
Year	12.75	16.71	15.83	6.16	7.33	6.06½

COPPER.

COPPER IN 1913.

The production of copper in 1913 was about 20,000,000 pounds less than in 1912 according to the smelter output but about 40,000,000 pounds more than 1912 according to the refinery output. The domestic consumption declined about 25,000,000 pounds but the exports increased nearly 115,000,000 pounds. Taking the figures issued by the Copper Producers' Association we find that 1913 compared with the four preceding years as follows:

Production of Refined Copper.

1913	*1,625,000,000
1912	1,581,920,287
1911	1,431,938,338
1910	1,405,403,056
1909	1,405,403,056

Domestic Deliveries.

1913	*795,000,000
1912	849,665,948
1911	709,611,605
1910	749,426,542
1909	705,051,591

Export Deliveries.

1913	*860,000,000
1912	746,396,452
1911	754,902,223
1910	722,451,494
1909	680,942,620

*Estimated.

The production during the first half of the year was 809,194,026 pounds and about 815,000,000 pounds during the second half but in each case fell short of equaling the record of 846,334,404 pounds which was established during the last half of 1912. This indifferent showing was due first of all to the strike at the refineries early in the summer but more especially to the strike in the Lake district which commenced on July 23rd and which has only just lately been settled. The loss in production of Lake copper amounted to about 60,000,000 lbs.

The deliveries into domestic consumption, January to June 1913, amounted to 429,191,722 pounds which were the largest for any half year in our history, but the recession in business which became pronounced during the last quarter caused a shrinkage to 366,000,000 pounds in the July to December period. During November and December we estimate the consumption was less than 50,000,000 pounds per month.

The exports were uniformly large throughout the entire year.

The following shows the production, exports and domestic deliveries by half years since 1909.

1913	Production	Exports	Deliveries Domestic
Jul.-Dec.	815,000,000	428,000,000	366,000,000
Jan.-Jun.	809,194,026	432,500,280	429,191,722
1912—			
Jul.-Dec.	846,334,404	360,112,965	425,243,861
Jan.-Jun.	735,585,883	386,283,487	394,422,087
1911—			
Jul.-Dec.	706,279,291	401,932,673	372,326,087
Jan.-Jun.	725,659,047	352,969,560	337,285,518
1910—			
Jul.-Dec.	734,855,570	420,060,746	361,150,646
Jan.-Jun.	717,266,550	302,370,748	388,275,896
1909—			
Jul.-Dec.	724,010,447	345,663,963	391,438,434
Jan.-Jun.	681,392,609	335,278,657	313,613,157

The year opened with copper "pegged" at 17¼¢, a price that had nominally been in effect since June of 1912. But there had been no business for several months during which time the stocks of copper in producers' hands had increased from 46 millions on September 1st, to 105 million pounds on January 1, 1913. On January 13, the producers were obliged to withdraw the peg and prices declined steadily until a 14¾¢ level was reached towards the end of February. This decline induced large buying, both on the part of European buyers and domestic consumers, business conditions at that time being satisfactory and consumption large, and the result was the market underwent a gradual improvement which restored the price to 15⅞¢ by the middle of May. But the market did not stay long at this price as buyers stopped buying and it was necessary to offer concessions in order to bring them back into the market, and the price receded to 14⅛ by the middle of July. The strange part about this decline was that it took place during a time when the stocks of copper were undergoing a remarkable shrinkage, the producers' stocks on July 1, being less than half what they were on February 1.

Coincident with the declaration of a

COPPER.

strike at the Lakes in July, there was revived the talk about a copper famine, which really seemed liable to occur, and another buying movement set in which advanced prices from 14½ to nearly 17c. The expected famine and the resultant "famine prices" did not materialize however, owing to the slump in business in the last quarter of the year and as it was afterwards proved, the critical stage was passed on September 1st, at which time the producers' stocks amounted to the absurdly small sum of 29,793,094 lbs., or about one week's supply.

From early in September until late in December, the market went through another dull period and as was the case before, prices weakened under the dullness, getting back to 14¼¢ just before Christmas. Then in Christmas week the fourth big buying movement of the year was started, but this time it did not have the same backing as before and buyers' requirements were soon satisfied and prices advanced only ½¢ lb.

As shown above the copper market in 1913 was notable for the fact that it underwent six distinct movements, viz.:

January 1	opening price		17.02½
February 27	declined	to	14.70
May 14	advanced	to	15.87½
July 16	declined	to	14.15
Sept. 19	advanced	to	16.87½
Dec. 24	declined	to	14.12½
Dec. 31	advanced	to	14.87½

The monthly fluctuations in the price of electrolytic in 1913 are given below, together with the annual averages for the past seven years:—

1913—	Highest.	Lowest	Average.
January	17.60	16.00	16.76
February	16.25	14.70	15.27
March	15.25	14.80	14.93
April	15.70	15.10	15.48
May	15.90	15.60	15.73
June	15.35	14.50	14.85
July	15.12½	14.15	14.57
August	16.00	15.12½	15.68
September	16.87½	16.12½	16.55
October	16.80	16.15	16.54
November	16.37½	14.62½	15.47
December	15.00	14.12½	14.47
Year	17.60	14.12½	15.52

Annual Averages.

	Lake.	Electrolytic.	Casting.
1913	15.69	15.52	15.33
1912	16.58	16.48	16.29
1911	12.71	12.55	12.42
1910	13.12	12.88	12.81
1909	13.39	13.11	13.02
1908	13.50	13.39	13.18
1907	21.30	20.86	20.06
1906	19.87	19.77½	19.38
1905	16.09	15.98	15.67½
1904	13.24	13.11	12.92

COPPER PRICES IN DECEMBER.

	NEW YORK			LONDON					
				Standard			Best		
Day.	Lake.	Electrolytic.	Casting.	(Prompt)			Selected.		
	Cts.	Cts.	Cts.	£	s	d	£	s	d
1	15.00	14.68¾	14.43¾	65	7	6	70	0	0
2	15.00	14.62½	14.37½	65	15	0	70	0	0
3.	15.00	14.62½	14.37½	65	12	6	69	15	0
4	15.00	14.62½	14.37½	65	17	6	69	10	0
5	14.87½	14.50	14.31¼	65	10	0	70	0	0
6.	.....	...	.....	.....			.....		
7.	....	...	...	.....			.....		
8.	14.62½	14.37½	14.18¾	65	10	0	69	15	0
9.	14.62½	14.37½	14.18¾	65	5	0	68	15	0
10	14.62½	14.37½	14.18¾	65	8	9	68	15	0
11.	14.62½	14.37½	14.12½	65	17	6	70	0	0
12	14.62½	14.31¼	14.06¼	65	7	6	70	0	0
13	. .	. .	.....	..	..	..	....		
14.	.....	....	.....	...	...	...	.....		
15	14.62½	14.31¼	14.06¼	65	7	6	69	15	0
16.	14.62½	14.31¼	14.06¼	65	0	0	69	15	0
17	14.62½	14.31¼	14.06¼	65	2	6	69	15	0
18	14.62½	14.31¼	14.06¼	64	5	0	68	15	0
19	14.62½	14.25	14.00	63	15	0	69	0	0
20	.	....	...	.			.		
21	.	...	.	...			.....		
22	14.62½	14.25	14.00	64	3	9	68	0	0
23	14.62½	14.25	14.00	64	5	0	69	0	0
24	14.62½	14.31¼	14.06¼	64	15	0	69	5	0
25	..			.					
26	15.00	14.56¼	14.37½						
27				.			.		
28.	.....	.....	.....	.....					
29.	15.37½	14.87½	14.56¼	66	6	3	70	0	0
30	15.37½	14.87½	14.56¼	66	0	0	70	10	0
31	15.37½	14.81¼	14.50	65	2	6	70	5	0
High	15.50	15.00	14.625	66	10	0	70	10	0
Low	14.50	14.125	13.875	63	15	0	68	0	0
Av'ge	14.824	14.468	14.224	65	4	5	69	10	11

COPPER PRODUCTION.

Output of domestic refineries.

	1912.	1911.	
May	126,737,836	126,962,544	— 224,708
June	122,315,240	124,554,312	— 2,239,072
July	137,161,129	112,167,934	+24,993,195
Aug.	145,628,521	125,493,667	+20,134,854
Sept.	140,089,819	115,588,950	+24,500,869
Oct.	145,405,453	118,255,442	+27,150,011
Nov.	134,695,440	111,876,601	+22,818,839
Dec.	143,354,042	122,896,697	+20,457,345
Year	1,581,920,287	1,431,938,338	+149,981,949
	1913.	1912.	
Jan.	143,479,625	119,337,753	+24,141,872
Feb.	130,948,881	116,035,809	+14,913,072
Mar.	136,251,849	125,694,601	+10,557,248
April	135,333,402	125,464,644	+ 9,868,758
May	141,319,416	126,737,836	+14,581,580
June	121,860,853	122,315,240	— 454,387
July	138,074,602	137,161,129	+ 913,473
Aug.	131,632,362	145,628,521	—13,996,159
Sept.	131,401,229	140,089,819	— 8,688,590
Oct.	139,070,481	145,405,453	— 6,334,972
Nov.	134,087,708	134,695,440	— 607,732

COPPER DELIVERIES.

1912—	Domestic Deliveries.	Deliveries for Export.	Total Deliveries.
May	72,702,277	69,485,945	142,188,222
June	66,146,229	61,449,650	127,595,879
July	71,094,381	60,121,331	131,215,712
Aug.	78,722,418	70,485,150	149,207,568
Sep.	63,460,810	60,264,796	123,725,606
Oct.	84,104,734	47,621,342	131,726,076
Nov.	69,369,795	55,906,550	125,276,345
Dec.	58,491,723	65,713,796	124,205,510
Year.	819,665,948	746,396,452	1,566,062,400
1913—			
Jan.	65,210,030	60,383,845	125,593,875
Feb.	59,676,492	72,168,523	131,845,015
Mar.	76,585,471	77,699,306	154,284,777
April	78,158,837	85,894,727	164,053,564
May	81,108,321	68,285,978	149,394,299
June	68,452,571	68,067,901	136,520,472
July	58,904,192	78,480,071	137,384,263
Aug.	73,649,801	73,263,469	146,913,270
Sept.	66,836,897	73,085,275	139,922,172
Oct.	68,173,720	68,123,473	136,297,193
Nov.	48,656,858	70,067,803	118,724,661

VISIBLE SUPPLY OF COPPER.

Based on the returns of the Copper Producers' Association and H. R. Merton & Co.

	Stocks in American Producers' hands	Monthly Fluctuation	European. Visible Supply.	Monthly Fluctuation	Combined Visible Supply.	Monthly Fluctuation.
1912—						
Jan. 31.	66,280,643	—23,174,052	124,476,800	— 3,837,120	190,757,443	—27,011,172
Feb. 29.	62,939,988	— 3,340,655	115,375,680	— 9,101,120	178,315,668	—12,441,775
Mar. 31.	62,367,557	— 572,431	112,392,000	— 2,983,680	174,759,557	— 3,556,111
Apr. 30.	65,066,029	+ 2,698,472	111,487,040	— 904,000	176,553,069	+ 1,793,512
May 31.	49,615,654	—15,450,386	99,877,120	—11,609,920	149,492,763	—27,060,306
June 30.	44,335,004	— 5,280,639	93,168,320	— 6,708,800	137,503,324	—11,989,439
July 31.	50,280,421	+ 5,945,417	100,791,040	+ 7,622,720	151,071,461	+13,568,137
Aug. 31.	46,701,374	— 3,579,047	102,224,640	+ 1,433,600	148,926,014	— 2,145,447
Sep. 30.	63,065,587	+16,364,213	99,025,920	— 3,198,720	162,091,507	+13,165,493
Oct. 31.	76,744,964	+13,679,377	96,992,000	— 2,033,920	173,736,964	+11,645,457
Nov. 30.	86,164,059	+ 9,419,095	91,203,840	— 5,788,160	177,367,899	+ 3,630,935
Dec. 31	105,312,582	+19,148,523	90,406,400	— 797,440	195,718,982	+18,351,083
Year 1912		+15,857,887		—37,907,520		—22,049,633
1913—						
Jan. 31	123,198,332	+17,885,750	85,563,520	— 4,842,880	208,761,852	
Feb. 28	122,302,198	[illegible]	80,967,040	— 4,596,480	203,269,238	— 5,492,614
Mar. 31	104,269,270	[illegible]	72,264,640	— 8,702,400	176,533,910	—26,735,328
Apr. 30	75,549,108	—28,720,162	68,178,880	— 4,085,760	143,727,988	—32,805,922
May 31	67,564,225	— 7,984,883	66,312,960	— 1,865,920	133,787,185	— 9,940,803
June 30	52,903,600	[illegible]	63,038,080	— 3,274,880	115,942,686	—17,844,499
July 31	65,794,945	[illegible]	63,490,560	+ 452,480	117,085,505	+ 1,142,819
Aug. 30	48,314,037	—15,280,908	59,373,440	— 4,117,120	97,687,477	—19,398,028
Sep. 30	29,793,094	— 8,520,943	50,451,520	— 8,921,920	80,244,614	—17,442,863
Oct. 31	42,566,382	+ 7,669,252	47,824,000	— 2,627,520	80,390,382	+ 145,768
Nov. 30	41,929,429	+15,363,047	48,115,200	+ 291,200	96,044,629	+15,654,247
Dec. 31			47,040,000	— 1,075,200		

ANTIMONY—ALUMINUM

ANTIMONY IN 1913.

The past year was a most unsatisfactory one from an antimony dealer's standpoint for it not only witnessed a continual decline in prices but also during the greater part of the time business was abnormally dull. A lot of very large contracts were placed during the last quarter of 1912 for deliveries over the first half of 1913 at prices ranging from 7½ to 9c per lb. for Hungarian grades, on which the buyers suffered considerable loss when the time of delivery came round. As shown in the following table the price of the metal declined during every month in the year but the year's average corresponded quite closely with the averages for the four preceding years:

1913—	Cookson's.	Hallett's.	Hungarian.
Jan.	9.66	9.18½	8.77½
Feb.	9.31	9.00	8.16
Mar.	9.03	8.66	7.91
Apr.	9.00	8.35	7.82
May	8.77	8.23	7.75
June	8.63	8.11	7.62
July	8.47	8.05	7.55
Aug.	8.38	7.93	7.48
Sept.	8.30½	7.75½	7.31
Oct.	7.66	7.31	6.46
Nov.	7.52	7.26	6.28
Dec.	7.45	7.06	6.05
Year 1913..	8.51½	8.07½	7.43
" 1912..	8.54	8.19	7.63
" 1911..	8.58	8.16	7.48
" 1910..	8.24	8.00	7.27
" 1909..	8.27	7.98	7.35

Coupled with the declining market there was the knowledge that the duty on this metal was going to be reduced, and consumers naturally economized on their purchases and reduced their stocks as much as possible during the first half of the year. When the new tariff went into effect in October, which reduced the duty from 1½c per lb. to 10% ad valorem, business had commenced to slow down and buyers were not to be tempted by the lower prices due to this reduction in the duty. A few purchases were made during December but it is safe to say that the outstanding contracts at the end of the year were not one-quarter of what they were at the close of 1912.

The imports of antimony for the ten months ended October, 1913, were 13,246,391 lbs., as compared with 14,382,237 lbs. during the same period in 1912. Early in the year the imports were very large but during the closing months they fell off considerably.

The domestic production of antimonial lead was approximately 16,338 tons in 1913, as against 13,552 tons in 1912.

ALUMINUM IN 1913.

The year 1912 witnessed a great expansion in the consumption of aluminum in this country and the movement continued unabated throughout the first half of 1913.

During the second half of the year, however, there was a considerable recession in trade, more especially in the automobile line, so that we estimate the consumption in 1913 as only slightly in excess of 1912. Our estimate of 73,000,000 lbs. is based on imports of 23,000,000 lbs. and a domestic production of 50,000,000 lbs., and compares with the consumption of previous years as follows:

1912	65,607,000
1911	46,125,000
1910	47,734,000
1909	34,210,000
1908	11,152,000
1907	17,211,000
1906	14,910,000
1905	11,347,000
1900	7,150,000
1895	920,000
1890	60,000

There was an acute scarcity of supplies during the first four months of the year and the price during that period averaged above 26½¢. But, commencing with May, the supplies seemed to catch up with the demand and from that time on the market declined steadily right up to the end of the year.

One of the important features was the reduction in the duty from 7¢ to 2¢ per lb. on alloys and ingots, and from 11¢ to 3½¢ per lb. on sheets and plates which became effective on October 3rd. This was responsible to some extent for the decline in our market, but strangely the imports during the first quarter of the year, under the 7¢ tariff were considerably larger than

ALUMINUM.

those of the last quarter under the 2¢ tariff. The domestic producers have regulated their prices to meet the exigencies of the case and the market here was usually within a fraction of a cent of the import cost.

The price fluctuations in 1913 are given below:

1913—	Highest.	Lowest.	Average.
January	26.37½	26 12½	26.31
February	26.50	26.00	26.20
March	27.12½	26.25	26.72½
April	27.12½	26.62½	26.91
May	26.62½	25.00	25.95
June	25.75	23.00	24.79
July	24.00	23.00	23.34
August	23.50	21.50	22.74
September	22.50	21.50	22.00
October	22.00	19.75	20.32
November	19.75	19.00	19.49
December	19.00	18.50	18.85
Year	27.12½	18.50	23.63

Monthly averages for 1913:

January	18.75	July	22.09
February	18.75	August	23.75
March	18.94	September	24.50
April	19.58	October	26.83
May	20.70	November	27.06
June	21.92	December	26.46

COMPOSITE METAL PRICES.

Computation for January 2, 1914:

Pounds.	Metal.	Price.	Extension.
4	Lead (St. Louis)	4.07½	16.300
2½	Spelter (St. L.)	5.12½	12.812
3	Copper (Electro)	14.75	44.250
.	Tin (New York)	36.80	18.400
10 pounds			91.762
	One pound		**9.1762**

Monthly averages:

	1909.	1910.	1911.	1912	1913.
Jan.	8.521	**9.084**	8.908	9.778	10.987
Feb.	8.142	8.884	8.915	9.677	10.260
Mar.	**7.921**	8.778	8.797	9.886	10.024
April	8.121	8.568	8.795	10.277	10.208
May	8.298	8.413	8.795	10.468	10.163
June	8.506	8.362	9.154	11.014	9.648
July	8.365	**8.338**	9.100	11.043	9.398
Aug.	8.522	8.479	9.188	11.092	10.025
Sep.	8.520	8.569	8.928	11.575	10.370
Oct.	8.592	8.747	8.990	11.596	10.029
Nov.	8.787	8.888	9.306	11.372	9.590
Dec.	9.036	8.881	9.675	11.219	9.556
Year.	8.444	8.665	9.045	10.750	10.021

Annual Averages:

1913	23.63
1912	22.52
1911	20.34
1910	21.50*
1909	21.75*
1908	27.00*

*Approximate.

The European market was under the control of the syndicate and despite the falling off in the American demand, prices were not allowed to react to any extent. At the commencement of the year, the price was 18 to 18½ as against 16 to 16½ at the close.

ALUMINUM, ANTIMONY AND SILVER IN DECEMBER.

	Aluminum.	Antimony — Cookson.	Antimony — Hallett.	Antimony — Hungarian.	Silver — New York.	Silver — London.
Day.	Cts.	Cts.	Cts.	Cts.	Cts.	d.
1	19.00	7.45	7.15	6.05	56⅛	26⅛
2	19.00	7.45	7.10	6.05	57⅜	26½
3	19.00	7.45	7.10	6.05	57⅝	26⅝
4	19.00	7.45	7.10	6.05	57¾	26⅛
5	19.00	7.45	7.05	6.05	58⅜	27
6	....	....	....	....	58⅞	27¼
7	....	....	....	....	....	....
8	19.00	7.45	7.05	6.05	58¼	27 1/16
9	19.00	7.45	7.05	6.05	58¼	26⅛
10	19.00	7.45	7.05	6.05	57⅝	26¾
11	18.87½	7.45	7.05	6.05	57⅝	26¾
12	18.87½	7.45	7.05	6.05	58	26⅛
13	....	....	....	....	58	26⅛
14	....	....	....	....	....	....
15	18.87½	7.45	7.05	6.05	57⅝	26⅝
16	18.87½	7.45	7.05	6.05	57⅝	26⅝
17	18.75	7.45	7.05	6.05	57⅝	26⅛
18	18.75	7.45	7.05	6.05	57¾	26⅛
19	18.75	7.45	7.05	6.05	58	26⅛
20	....	....	....	....	58	26⅛
21	....	....	....	....	....	....
22	18.75	7.45	7.05	6.05	57⅝	26⅛
23	18.62½	7.45	7.05	6.05	57½	26⅝
24	18.62½	7.45	7.05	6.05	57½	26⅛
25	....	....	....	....	....	....
26	18.62½	7.45	7.05	6.05	57½	....
27	....	....	....	....	57⅝	26⅛
28	....	....	....	....	....	....
29	18.75	7.45	7.05	6.05	57⅝	26⅝
30	18.75	7.45	7.05	6.05	57½	26⅝
31	18.75	7.37½	7.05	6.05	57⅛	26⅛
High	19.00	7.50	7.20	6.10	58⅞	27¼
Low	18.50	7.37½	7.00	6.00	56⅛	25⅛
Av'ge	18.846	7.446	7.061	6.05	57.76	26.72

TIN.

TIN IN 1913.

The year opened with tin at 50½c and a very nervous feeling regarding what 1913 would have in store in regard to high prices. The shrinkage in visible supply of over 3,000 tons in 1912 brought the supply down to 11,169 tons at the beginning of this year. The first four months of 1912 had seen a shrinkage of 5,000 tons in the visible which if repeated in 1913 would create an impossible situation as more than 6,000 tons must always be afloat from the East Indies to Europe and America. No wonder consumers became frightened and bought futures heavily covering requirements in many cases to middle of the year.

It is believed that on this business the London partners of the syndicate sold out on their Continental friends, and the rest of the year has been a contest between these interests that has continued up to the present. During April a sharp slump took place in the American deliveries into consumption, but the price kept strong, a leading London Bear transferring his operations from the Bear to the Bull side. In April America refused to respond to foreign stimulation, and a decline to 47½c was followed in June by a 5c per lb. decline, accompanied at times by semi-panic conditions, caused by Syndicate liquidation and London Bear pressure which was continued in July. The foreign financial strain at that time forced further liquidations by the Syndicate, and price further declined to 39⅛c. In August market recovered to 43.60 on better American buying and by a renewal of Syndicate activity, but in October it became very evident that consumption was falling off, and production increasing, causing an increasing visible supply, and market reacted to 41⅛c, and in September to 39.95c, holding fairly steady in November and declining in December to around 37c at about which price the year closed. The decline it can be seen has been very heavy, nearly 14c per lb. At the same time the visible supply is less than 3,000 tons greater than same date a year ago. The price decline has considerably more than discounted the increase in supplies. The future of the market hangs on whether the change from consumption in 1912 being 3,000 tons more than production, to 3,000 tons less than production in 1913 is to be continued. If this is not the case, and as the Syndicate still exists and is wisely selling as well as buying from time to time, meanwhile keeping their large interest in the market, they could easily on any encouraging features cause a heavy advance in price, and consumers after their experiences of the past three years could easily and justly be frightened.

Unlike this time last year consumers are carrying no stocks, and have very little bought for future delivery. The fact that tin sold at 50c during each of the past three years is not forgotten. There is no certainty of increased output in coming year, and every probability of a consump-

TIN PRICES IN DECEMBER.

	New York.	London prompts.	London C. I. F.
	Cts.	£ s d	£ s d
1	39.12½	178 7 6	181 15 0
2	38.70	176 10 0	180 0 0
3	38.80	177 5 0	177 15 0
4	38.15	174 2 6	178 10 0
5	38.25	174 15 0	175 15 0
6			
7			
8	37.70	172 0 0	175 10 0
9	37.40	170 10 0	173 0 0
10	37.50	171 0 0	172 0 0
11	37.62½	171 10 0	172 0 0
12	37.55	171 7 6	173 0 0
13			
14			
15	37.70	172 0 0	172 15 0
16	37.87½	173 0 0	174 0 0
17	37.55	172 0 0	175 0 0
18	37.35	169 12 6	174 0 0
19	37.15	169 0 0	171 5 0
20			
21			
22	36.90	168 5 0	171 0 0
23	36.75	167 7 6	170 5 0
24	36.85	167 10 0	169 5 0
25			
26	37.00		
27			
28			
29	37.70	171 10 0	170 15 0
30	37.37½	170 12 6	171 15 0
31	37.10	169 5 9	172 12 6
High	39.12½	179 0 0	181 15 0
Low	36.75	166 10 0	169 5 0
Av'ge	37.64	171 15 8	174 0 10

TIN.

tion as large or larger than the past year. The tin market promises to repeat the excited and mercurial changes of the past three or four years.

The Straits Settlements which produce more than 50% of the world's output report an increase in shipments during 1913 of 3,507 tons; Bolivia, the second largest producer, increased about 2,500 tons; the Banca sales decreased 1,250 tons which was partly offset by increases among the minor producers and we estimate the world's production of tin at 120,000 tons in 1913 as against 114,600 tons in 1912. The following comparison is interesting:

	World's Production. Tons.	Annual Increase. Tons.	Average Price. New York.
1905.....	90,550	1,950*	31.55c
1906.....	96,760	6,210	39.82
1907.....	92,290	4,470*	38.34
1908.....	104,150	11,860	29.54
1909.....	104,250	100	29.76
1910.....	103,500	750*	34.26
1911.....	109,600	6,100	42.68
1912.....	114,600	5,000	46.43
1913.....	120,000	5,400	44.32

*Decrease.

The deliveries into consumption in the United States in 1913 were 5,600 tons less than in 1912 and the combined deliveries in London and Holland were 2,361 tons less, the deliveries being given below;

	United States	London.	Holland.
Jan.	3,700	1,506	1,192
Feb.	3,500	1,765	1,308
Mar.	5,900	1,879	935
Apr.	3,450	1,002	1,584
May	3,350	1,371	968
June	3,800	1,511	1,471
July	3,900	1,799	758
Aug.	3,600	1,286	2,027
Sept.	3,100	1,451	1,342
Oct.	3,700	1,645	1,411
Nov.	2,800	1,318	1,001
Dec.	3,100	1,364	1,525
Year 1913	43,900	17,897	15,522
" 1912	49,500	18,592	17,188
" 1911	44,800	15,753	14,810
" 1910	45,350	15,190	14,878
" 1909	41,500	16,035	12,663

The visible supply of tin, as stated above, increased about 3,000 tons in 1913. The supply at the end of each month for the past five years was as follows:

	1909.	1910.	1911.	1912.	1913.
Jan. ...	21,895	23,024	18,616	16,707	13,971
Feb. ...	20,746	21,288	17,260	14,996	12,304
Mar. ..	19,208	20,203	16,682	15,694	11,132
Apr. ...	18,825	17,932	14,441	11,893	9,822
May ...	19,208	18,998	15,938	14,345	13,710
June ..	18,208	15,700	16,605	12,920	11,101
July ...	20,244	17,433	16,707	13,346	12,063
Aug. ..	19,182	17,943	16,619	11,285	11,261
Sept. ..	21,419	18,999	16,672	13,245	12,943
Oct. ...	18,724	18,183	14,161	10,735	11,857
Nov. ..	20,025	18,875	16,630	12,348	14,470
Dec. ...	20,918	17,194	16,514	10,977	13,893

The price fluctuations in 1913 and preceding years are given below:

1913—	Highest.	Lowest.	Average.
Jan.	51.00	49.90	50.45
Feb.	49.65	47.75	48.73
Mar.	48.40	45.75	46.88
Apr.	50.20	47.62½	49.12
May	50.70	47.25	49.14
June	46.70	42.75	44.93
July	41.65	39.12½	40.39
Aug.	43.60	40.70	41.72
Sept.	43.87½	41.12½	42.47
Oct.	41.20	39.95	40.50
Nov.	40.25	39.35	39.81
Dec.	39.12½	36.75	37.64
Year 1913...	51.00	36.75	44.32
" 1912...	51.05	42.05	46.43
" 1911...	48.50	37.60	42.68
" 1910...	38.75	31.75	34.27
" 1909...	34.12½	27.30	29.76
" 1908...	32.37½	26.45	29.54
" 1907...	44.10	26.00	38.34

TIN AND SILVER. (Monthly Averages).

	New York					
	Tin			Silver		
	1911.	1912.	1913.	1911.	1912.	1913.
Jan.	41.39	43.24	50.45	53.79	56.22	62.93
Feb.	42.83	43.46	48.73	52.22	59.04	61.64
Mar.	40.76	42.86	46.88	52.74	58.37	57.87
Apr.	42.20	44.02	49.12	53.33	59.23	59.49
May	43.10	46.12	49.14	53.31	60.88	60.36
June	46.16	47.77	44.92	53.04	61.29	58.99
July	42.96	44.75	40.38	52.63	60.66	58.72
Aug.	43.45	45.87	41.72	52.17	61.61	59.29
Sep.	39.98	49.18	42.47	52.43	63.08	60.64
Oct.	41.21	50.11	40.50	53.34	63.47	60.79
Nov.	43.13	49.90	39.81	55.72	62.79	58.99
Dec.	44.97	49.90	57.64	54.90	63.37	57.76
Year	42.68	46.43	44.32	53.30	60.83	59.79½

TRADE NOTES.

The Gulf State Steel Co., Birmingham, Ala., which recently was incorporated under the laws of Delaware, is the successor to Standard Steel Co. Brown-Marx building, Birmingham, Ala. President James Bowron advises that this company has acquired all the property and business at one time owned by the Southern Iron & Steel Co. and also that of the Self-Fluxing Ore Co., of Birmingham. The business, which was conducted by Mr. Bowron as trustee for the Southern Iron & Steel Co., and later in the name of the Standard Steel Co., which was a temporary corporation, now has been transferred to the permanent company under the title of the Gulf State Steel Co., President Bowron states that the company has no plans to announce at the present time, as to additional improvements, and that any statements which have been appearing as to the proposed construction of blast furnaces, open-hearth furnaces and billet mills, are entirely unauthorized.

National Mortising Machine Co., Springfield., has been incorporated; $10,000; by G. W. Campbell, C. H. Lammert, J. J. Hartman, A. E. Overhoker.

The Metal Shelter Co., San Francisco, has been incorporated; sheet metal devices; $25,000; by G. A. Fox, W. M. Dean and K. D. Dean, San Francisco.

The Atlas Foundry Co., Cleveland, has been incorporated; iron and steel foundry; $10,000; by B. R. Pearse, A. Wathey, D. E. Werts and C. W. Johnson.

New York Central Iron Works Co., Hagerstown, Md., has been incorporated; $225,000; to manufacture iron, steel and other metals and construct steel buildings; directors are M. P. Moller, O. D. McCardell, Charles D. Wagaman, William Wingert, C. D. Whipple, Hagerstown; L. P. Perry, Harrisburg; O. J. C. Rose, Geneva, N. Y.; A. H. Nichols, Auburn, N. Y.; H. B. Hirsh, Philadelphia.

A. H. Anderson, 1215 Fulton St., Chicago, is having plans prepared for a brass foundry. Plans call for a two-story, 25x120-foot structure estimated to cost $6,000.

The Shepard Plating Co., Racine, has been organized; $5,000; by William H. Shepard and Peter Ruetz to do a general plating and metal business.

American Motor & Transmission Co., N. Y. City, has been incorporated to manufacture machinery; $50,000; by C. H. Bassford, Newark, N. J., E. V. Nixon, East Orange, N. J., E. Reynolds, N. Y. City.

The Locomotive Recorder Co., Newark, has been incorporated to manufacture time recorders; $100,000; by J. E. Brown, G. H. Rose, J. F. Johns, Newark, N. J.

The Fibre & Steel Container Co., Albany, has been incorporated; $500,000; by M. J. McMullen, T. Tracy, George Costigan, 2 Columbus Circle, Albany.

McCarte Foundry Co., Brooklyn, has been incorporated; $10,000; by Alex McCarte, S. W. McCarte, S. H. Sarahan, 288 North Broadway, Yonkers.

Incorporation of the Coeur d'Alene Hardware & Foundry Co., Wallace, Idaho, proceeds consolidation of the Coeur d'Alene Hardware Co. and the Coeur d'Alene Iron Works, with capital of $500,000. Eugene R. Day, James F. McCarthy and Ellis L. Hale, Wallace, Idaho, are the incorporators.

The American Combustion Co., N. Y. City, advises it is incorporated at $50,000 to manufacture oil gas generators, gas engines and crude oil burners. Officers are: President, Neville Cain; vice president, Edgar Trenteseau; secretary, J. P. Horgan. A plant will be built later, after experimenting and development has been completed.

The Pittsburgh Railway Appliances Co., has been incorporated; $25,000; by Frank Moore, Frank T. Reese, A. E. Read, Guy L. McIntyre and A. M. Imbrie, Pittsburgh.

The Reliance Automatic Lighting Co., Racine, Wis., adisves it incorporation is the outcome of the purchase by Benjamin F. Flegel of the interests of H. D. Gunlefinger in the partnership heretofore existing between them. Mr. Flegel holds 98 per cent of the stock.

The Non-Explosive Can Co., N. Y. City, has been incorporated; $25,000; by S. Darling, W. S. Taft, W. W. Shaw, 2 Rector street, N. Y. City.

The Franklin Kent Corporation has been incorporated; metal products: capital $100,000; by Edwin B. Stimson, William F. Kosiak and Walter H. Wood, 20 Broad street, N. Y. City.

TRADE NOTES.

The Wolverine Brass Works, Grand Rapids, Mich., has filed notice of an increase of capital stock from $500,000 to $700,000. The additional capital will be used to take care of increasing business. The company has erected a large new factory and reports a good demand for its lines of plumbers' supplies.

The Modern Washerless Faucet Mfg. Co., N. Y. City, has been incorporated; $50,000; by Adolph Paul, George Peterson and W. E. Willis, 101 West 128th street, N. Y. City.

The Enterprise Iron & Foundry Co., Fort Worth, Texas, recently incorporated for $15,000, plans to build a foundry in that city. W. H. Horrell is interested in the company.

The Central Foundry Co., has been incorporated at Marshalltown, Ia., by R. H. McDowell, president and general manager; E. H. Keller, secretary and treasurer, and Thomas Kopp, Salem, O.

The Green Bay Foundry & Machine Wks, Green Bay, Wis., has been incorporated for $30,000 by J. J. Arvey, H. L. Indra and L. E. P. Miller to conduct a general foundry and machinery business.

The Charlotte Plating & Brass Co., Charlotte, N. C., has been incorporated for $100,000 by W. C. Murphy, W. A. Anthony and P. E. Thomson.

Benjamin F. and Henry B. Fliegel, of Racine, have organized the Racine Automatic Lighting Co., capital $10,000, to build electrical systems for automobiles, motor boats, etc.

The Bridgeport Auto Company will begin construction of a plant near Bridgeport, Ohio, within a short time for the manufacture of automobiles, motorboats, engines and parts of machines. A large Eastern automobile company will move its plant and consolidate with the Bridgeport company. J. Bernard Handlan, of Wheeling, W. Va., is president.

Westmount Motors, Ltd., Westmount, Que., has been incorporated with a capital stock of $50,000 by William K. McKeown, Leopold Choquette and others to manufacture automobiles, bicycles, motors, etc.

The Wilson Mfg. Co., Pittsburgh, has concluded negotiations with the Ohio Board of Trade, of Niles, for the purchase of the factory on Erie street in Niles, formerly occupied by the Economy Lamp Co. It is expected that the new factory will be in operation within 60 days. The Wilson Mfg. Co. will manufacture sheet metal specialties and household and cooking utensils such as bread toasters, ovens, potato bakers, heaters, cookers and ventilators.

The Meteor Motor Car Co. plans to move to Piqua from Shelbyville, Ind., and will occupy the building vacated by the Sprague Smith Furniture Co. The company will annul its Indiana charter and incorporate under Ohio laws with a capital of $50,000. The Indiana plant has a capacity of three cars. Maurice Wolf is head of the concern.

The Burke Valve Company, which has maintained an office in the Arcade, Cleveland, has established a plant for the manufacture of valves in the building on Windsor avenue formerly occupied by the Raymond Piano Company.

The Betschel Storage Battery Co., Chicago, has been incorporated with a capital stock of $31,000 to manufacture and sell electric batteries by R. A. Risch, George M. Merker and H. L. Wuerffel, Maywood, Ill.

Medart Patent Pulley Co., St. Louis, has been incorporated; $350,000; to manufacture and sell pulleys, machinery and castings; by Walter R. Medart and Elise Medart, et al.

The Phillips & Clark Stove Co., Geneva, N. Y., has commenced work on the erection of an addition to its factory, 60x100 ft., four stories and basement.

The Racine Pattern Works, Racine, Wis., has been incorporated by Wensel J. Simanek, J. C. Hamata and W. H. Armstrong. The capital stock is $10,000. Messrs. Simanek and Hamata established a pattern shop several months ago.

The Connecticut Aeroplane Co., New Haven, has been incorporated; $500,000; to make and sell air craft; by E. A. Millikin, of New Haven; Paul Webb, of Hamden; Ralph H. Clark, Derby.

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THE TRADE OUTLOOK.

The past month will be a marked one in the annals of modern business history, and will often be referred to by writers on economic subjects, as the period, when after the year of "the panic that never came," a sudden change took place from acute pessimism to confident optimism, and when all the fears and uncertainties of a twelfth-month disappeared like the sudden lifting of a fog.

The old adage that it is darkest before dawn was fully confirmed when December 1913 is compared with January 1914. The uncertainties and fears that tried the souls and courage of business the world over, found all business dispirited and depressed at the close of the year, and in our country we were in the midst of the most sensational curtailment of operations that had ever taken place in history, outside of times of panic or war. Our basic industry, the iron and steel trade, had collapsed from full operations of three months before, to about 40% of normal. It was rare to find a hopeful view expressed regarding the early months of the new year. Stress was laid on the losses caused by the Balkan war that would take time to restore, that money must continue tight all through 1914 until new wealth was supplied by the crops, that too much of the wealth of the world was invested in enterprises and improvements that must remain unproductive for years, leaving not enough fluid money to handle properly and with ease the business of the world. That in the United States a revolution had taken place in the Tariff and fiscal affairs of the country, which even if a benefit eventually would take some time to try out; that socialistic experiments and business regulations by the

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Government would continue to create distrust of capital and business; that the extravagance of both the individual and Government, civic and federal, the disproportion between wages and return from capital, and many other unfavorable features, too well known to require repetition, would all militate against any improvement in business.

We took occasion to examine these fears, and while acknowledging the facts on which they were founded, drew attention to the peculiar circumstances that accompanied them and gave our reason for reaching a conclusion that there were fundamental conditions which would be more powerful for a return to normal conditions, than those which apparently were causing such an acute state of apprehension in business. It required, however, some courage to write our closing sentence last month when we said, "we predict a growing expansion from now on, with trade in full swing before midsummer."

A Great Change.

A remarkable and sudden wave of optimism has since swept over Europe and America. The losses of the Balkan war are forgotten. Instead of not enough money, there has been a glut of funds with interest rates being reduced every day. The tariff and fiscal changes have become regarded as blessings and potent aids to business expansion. The Government has made peace with business and little fears are felt of the alliance being disrupted. High costs of living are quoted now as signs of individual ability to demand and pay for the conveniences, and what were years ago luxuries, but which are now the necessities of life. One hears little of wage reductions, and a great deal of profit sharing between the employer and his workmen. In a word, confidence has been restored. The wheels of business are daily increasing in their revolutions. The procession of business has made a start to march onward, and we confidently believe our other prediction will be confirmed, "trade in full swing by midsummer."

No Miracles Occur in Business.

Judging, however, by the attitude of some, especially in speculative circles, one would think a sudden miracle had occurred in business, and that from abnormal times we had suddenly jumped into perfectly normal conditions. But no miracles occur in business. Sentiment can change in a day, actual business developments proceed from fundamental causes, which although they can often be discerned in advance are slow in their actual operations. We think it will be true in this case, and that in some directions we are getting ahead of the real actual trade procession, and if so will have to go more slowly than we have in the past three weeks, if not we must retrace some of our steps later on.

There is no need for disappointment if the late wave of optimism having spent itself, seems to recede. It will be followed by another one that will put us further up on the shore of business recovery.

Our plea is for conservatism in our views of the future. A great deal is present to make our recovery slow, but that it will be sure we are certain.

Outlook Justifies Confidence But Conservatism.

There yet remains to be secured a restoration of the disturbed relation of cost of operation of our railroads to the amount of revenue (freight rates) that they are to be permitted to obtain. There is the risk that our legislators at Washington may be encouraged by the way the vitality and strength of business has survived the surgical operations to which it has been subjected, to indulge in other experiments, the outcome of which may be less satisfactory. The present ease of money has been caused by the release of capital which was previously withdrawn by the lack of confidence of its possessors, and be it remembered, by business being at under 75% of normal. The way it is being snatched up by the flotation of large civic and Government loans, is not promising for future ease when business is restored to full operations. Until with a new harvest, new wealth is supplied, we must be content not to increase our speed too rapidly. We pleaded for confidence; it is here. Our plea is now for continued confidence, but mixed with it sound and careful conservatism. The morning of our business revival has begun, but some months are before us before it will be full midday.

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THE TRUST LEGISLATION AT WASHINGTON.

Although President Wilson's trust message was delivered only on January 20th the people are thoroughly familiar with its contents, and are largely in harmony with its recommendations. This state of the public mind reflects two things: (1) The progressively increasing readiness with which governmental interference with business is accepted, the moving away from the "public be damned" attitude of a little over a generation ago; (2) The willingness to embrace peace at almost any price, as relief from the continued nagging and constant uncertainty of the past few years.

Almost everywhere the President's message received rare commendation, and even in quarters where decided opposition might have been expected, and no one can read the message without concluding that those who love "big business" and yet commend the message must do so on account of the polite and kindly spirit shown rather than on account of the absence of any of the drastic recommendations which might have been made. There are those who are trying to make out that the President has receded; we do not think he has receded one inch and suggest that those who are trying to represent that he has are merely trying to save their own countenances.

"Unconstitutionality" the word they used to conjure with so much, is coming into print again, but we cannot establish the connection. As to the recommendation that the manufacturer be prohibited from imposing a fixed selling price upon the distributor, it would appear that recent Supreme Court decisions even under existing law have easily paved the way for such legislation being declared fully within the constitution.

As to another point the question of constitutionality seems equally clear in the other direction, that of restricting a stockholder in various corporations from having a voice in each proportionate to his stock holdings. But if the message be consulted, it is found that this recommendation of President Wilson's stands apart from all his other recommendations, in that he recommends the matter for the consideration of Congress, whereas the other matters he recommends Congress to enact into law. The essence of the corporation is that its management is the collective mind of those who own the property, by owning stock in the corporation, and to prohibit a man from having a voice in the management, through the prescribed method of his being a director, seems to us clearly to be a deprivation of property without due course of law, while the due course of law could only deprive him of the voice by establishing that the stock was improperly acquired.

One cannot but admire the fine discrimination which is being shown by throwing open to public hearings the whole matter of this proposed trust legislation, when properly enough, as it now seems, similar opportunities were not granted in the case of the trust and currency legislation. Public hearings serve an excellent purpose in this instance. There has been amply sufficient of public utterance from all parties in this trust question in the past few years to indicate that there will be little rancor or bitterness developed in these hearings, which is a remarkable evidence of the happy frame of mind now existing on the part of big business, the people and the legislators. To the man from Mars, whom the lecturers so like to consult, it would certainly appear that tariff and currency would provoke less animosity than the trust question, and yet the condition is quite the reverse.

One of the greatest points of interest in the proposed trust legislation is the bearing or influence it may possibly have upon the dissolution suits now pending in the courts. The legislation as outlined does not seem to have a profoundly important bearing, except as the existence of the proposed commission may aid the Supreme Court in its decisions. That court has had duties placed upon it which were much greater, we think, than were contemplated when the court was constituted. When the government was established we think there was reason to expect that Congress would more closely define things in its legislation than has been the case in a number of instances; that it would, for instance, in a case like the Sherman law, follow up the legislation with such additional legislation as would reasonably appear desirable. For this omission in the case of the Sherman

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law we have the profound egotism and crass stupidity of the Republican party to blame—egotism proved by its inability to foresee its own fate or stupidity shown by its inability to avert it. With the commission constituted, the Supreme Court is likely to make the greatest possible use of it, in formulating its decisions.

There has been so much misrepresentation with regard to the government's attitude in the United States Steel Corporation case, an attitude which we do not think has changed materially on account of the change of administration, that a word may here be inserted. There is reason to surmise that some of the reports that the government sought dissolution along the lines of disintegration, of separating ore from lake transportation, lake transportation from blast furnaces, blast furnaces from steel works, and so on, were spread without any warrant, but rather with the evil purpose of discrediting the prosecution in the public mind. Our impression is that the dissolution which the Attorney-General's office seeks is clearly and specifically a dissolution along strict lines of integration, whereby if the corporation were separated into parts, those parts would be strictly integrated along lines of manufacturing and commerical economy. Thus the dissolution sought is not nearly as disruptive as has been painted in some quarters. The Supreme Court will have to judge to what extent, if any, the steel corporation represents a trend toward monopoly, and it is reasonable to infer that the more the practices of corporations are hedged about by the laws existing at the time of the decision, the less the court will need to think about the future and the more it will think about the conditions actually existing in the steel market. The steel corporation contends that there is nothing monopolistic in its conduct, and if its contention is correct then the prospective legislation is favorable to it, rather than unfavorable.

If this be the condition as to the most important prosecution now before the courts, or threatened to be brought before the courts, it cannot be held that the imminence of this trust legislation is inimical to business, in view of the way business has been held to be disturbed in the past few years by legislative uncertainties. However, it was not necessary to wait until this late date to conclude that trust prosecutions are not harmful to business as used to be contended. One can readily recall that in 1911 it was said that if the government should bring suit against the steel corporation, then there would be no hope of any prosperity in the steel industry until the case were settled. The outcome is that since the suit was brought we have had a great uplift in the steel industry, and a complete downfall again. The market has gone through the complete cycle, and were the suit to be continued ten years longer the market would in all probability traverse the cycle from three to five times more.

THE INDUSTRIAL RAILWAY DECISION.

The Interstate Commerce Commission decision of January 27, in the general case of allowances to terminal or industrial railways by the regular railroads, furnished a surprise to those who control such pseudo railways, by reason of the radical position taken, and we may infer it furnished some surprise to the regular railroads themselves for the same reason, even though the railroads are understood to have brought some pressure upon the commission to decide as it did. It must not be inferred that the railroads were openly responsible for the case. The commission formally undertook the investigation, some years ago, acting as it stated upon its own initiative, and in the decision there is a little slap given the railroads by the statement that the railroads cannot with good grace ask for increases in rates, on the plea of insufficient revenue, when they have been allowing this drain upon them.

We do not think a single person has ever seriously undertaken to assert that originally these industrial railways existed for the purpose of securing divisions which amounted to rebates, when the regular giving of rebates had been discontinued, but there have been successive reductions and curtailments of the allowances, with the idea of bringing them down to defensible proportions. The shippers controlling these industrial lines probably expected a decision against them, but they thought they would save something out of the wreck. Now, it appears, they save nothing. True,

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six lines were excepted from the general prohibition in the decision of January 27, 1914, but the owners of these lines do not derive much comfort from the exception, because it is rather apparent that the commission excepted them not because the allowances they had been given were regarded as justified, but because from the size and operation of these six lines they required slightly different treatment in form. The probability is that as their cases are decided in turn they will be dealt with practically as strongly as the others.

The commission's decision is rather a lengthy one, and deals with many allowances besides the direct one of divisions of through rates. The general statement is made that the amount at issue is about $15,000,000 a year.

If the spirit of a few years ago prevailed, the next step would be for the railroads to reduce their rates by the amount of the divisions prohibited, or by important fractions of those amounts. As matters now stand it is improbable that they will make any changes. In all probability they will conclude to pocket the $15,000,000.

The owners of these individual lines of industrial railways naturally feel that they have been injured through the decision, that something is taken from them to which they were entitled. Their natural viewpoint is that their lines did perform definite and important functions for the railroads, in "spotting" cars, etc., services which it would cost something for the main lines to perform, and services which those roads do perform for the small shipper who does not have his private railroad.

In the broader sense, however, it looks as if the owners of industrial lines were simply opportunists. They had big plants, justifying the setting up of these lines, and if the railroads could be made to pay for operating them, there was an opportunity which should be embraced. Otherwise the plant owner would have to perform, at his own expense, services which the regular trunk line performed without demur for this small competitor. Well, there are various expenses connected with operating a large plant which do not obtain in a small plant, and yet on the whole the large plant is judged to be the more economical. If a plant contains eight blast furnaces the average distance the molten iron must travel to the mixer is greater than if the plant contains only two blast furnaces, but on the whole it is nevertheless more economical to have eight blast furnaces.

It has been suggested that the industrial railway decision indicates that the commission is averse to granting the 5% general increase in rates now desired by the eastern roads. We do not so understand its position. The commission declared in substance that the roads could not with good grace ask for the general increase, on the plea of insufficient revenue, as long as they were allowing this $15,000,000 to slip from them, but as the commission has now stopped the leak the roads would be entitled at any rate to the balance of their demand. However, we rather think the reference was put in largely as a matter of expediency, to discourage the railroads from demurring to the decision or making any reductions in rates to let the shippers down easy when their industrial railway allowances were taken from them.

WHAT THE FIVE PER CENT FREIGHT INCREASE MEANS.

(From the Boston News Bureau.)

If the Interstate Commerce Commission allows the advance in freight rates which the railways have asked for it will be a smaller concession than most people think. It is a matter of importance to the railroads and also to the community at large but the increase itself is so infinitesimal as far as the freight unit is concerned as to be interesting and even serious though the freight business is so huge that the smallest increase in rates would aggregate a large amount.

The average freight rate per ton per mile in this country is less than three-quarters of a cent. The Pennsylvania's rate in 1912 was less than six mills per ton per mile. Some few roads average only about four mills per ton per mile and on one occasion freight was carried by the Chesapeake & Ohio for about two mills per ton per mile. All these figures are ridiculously low, but while they are generally quoted as the railroad rates the railroads do not get even the small

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amount for carrying freight that these figures represent as they are the gross receipts by the roads. In the case of the Pennsylvania Railroad, while the gross revenue per ton per mile was just below six mills in 1912, the average expense per ton per mile was over four mills and the net revenue per ton per mile was less than two mills.

The following figures show the actual freight rates per ton per mile in 1912 on the Pennsylvania Railroad, and the change which the 5 per cent increase would have made in rates and the actual amount of the increase. The revenue per ton per mile would have been increased not quite one-third of a mill per ton per mile in 1912 if a 5 per cent increase had been in force in that year and this represents the actual profit which the Pennsylvania Railroad would have received under such circumstances. The figures are:

	1912	Rate under 5% increase	Actual increase.
Gross revenue per ton mile (mills)	5.83	6.12	0.29
Expenses per ton mile	4.10	4.10	
Net revenue per ton mile	1.73	2.02	0.29

The actual number of tons of freight carried by the Pennsylvania Railroad one mile in 1912 was 22,012,606,173, and the gross revenue from this service was $128,346,181. The 5 per cent increase would have amounted to $6,383,655 in that year.

THE NEW WALL STREET.

Under this heading the N. Y. World says editorially as follows:

"The President's New Freedom has given us a new banking and currency system, a new tariff, a new income tax, a new constitution of peace between government and business and a new theory of our duty toward Latin-American states afflicted by revolution and tyranny.

"If the words of William C. Van Antwerp, one of the governors of the New York Stock Exchange, mean anything, there has been another development as remarkable as any of these. Speaking at Washington in commendation of Mr. Wilson's policies as announced in his recent address to Congress, Mr. Van Antwerp said:

"'Heresies and schisms come and go; man-made laws appear and disappear; but the human heart does not change, and in the last analysis we come to know that only righteousness exalteth a nation. **We of the Stock Exchange know this to-day better than we ever knew it before, and we intend to live by it through the years.** We shall make many mistakes, no doubt, but we shall stick to our standards and rejoice in them, and some day—mark my words—this great market place will earn the admiration and respect of the whole people.'

"'**We are determined to show our critics by our deeds that the Stock Exchange means something vital and vitalizing in America, that it is an important adjunct of the new Wall street—a broad highway from ocean to ocean, doing its utmost to meet the needs of a happy and prosperous land.**'

"It is to be regretted that when Howard Elliott spoke in New York the other day on 'What Ails the New Haven?' he could not have made an equally 'honorable surrender.' He gave many reasons for the plight of that great property, but he did not mention the one that had more to do with it than all the others. On the subject of monopoly and plunder as promoted by the old Wall street he was silent.

"There is no abject confession in Mr. Van Antwerp's pronouncement, and there was need of none. He indicates past conditions sufficiently when he describes those of the present and makes his promises for the future. In this respect his utterance may be accepted as a worthy response, both in language and in sentiment, to the President's firm but kindly notice that a new era of law enforcement is at hand.

"It is a good thing for the country that the conception of 'a new Wall street, a broad highway from ocean to ocean, doing its utmost to meet the needs of a happy and prosperous land,' originated in Wall street itself. Nobody else has said it. Millions of men have waited for such a message from that quarter. Where that ideal is truly held there will be no lack of the co-operation and counsel which the President in the interest of justice and peace has so earnestly and so eloquently invited."

THE SELLING OF COPPER.

American Smelting & Refining Co. Heads Agency List With Over 500,000,000 Pounds — Amalgamated Takes Second Place—No Important Agency Changes.

Boston. The American Smelting & Refining Co. has finally landed at the top among the sellers of copper, having passed its chief rival, the United Metals Selling Co., which since its formation a dozen years ago has been the most important factor in the copper selling field. Including the Braden product, marketed entirely in Europe, the Guggenheim agency had the handling of more than half a billion pounds of copper during 1913 as compared with 442,000,000 pounds credited to the Amalgamated selling department.

Phelps, Dodge & Co. maintained third position with a slight increase in amount of copper handled, the total being 209,000,000 pounds.

The other selling agencies were below the 200,000,000-pound mark. An important expansion was that of L. Vogelstein & Co., which crept up to 144,400,000 pounds as compared with 144,900,000 pounds handled by the American Metal Co.

Against these increases must be recorded the heavy losses suffered by the Lake companies, which market their own copper to a great extent. The severest loss was that of Calumet & Hecla, which through its sales department handles the product of the various mines controlled by this company. Against more than 120,000,000 during the preceding year this agency had the marketing of but 84,000,000 pounds in 1913. The other Michigan companies, also affected by the miners' strike, suffered in proportion, the Stanton total being but one-half of a year ago, while the Quincy production fell from 21,500,000 to 12,000,000 pounds.

The refinery production of copper in the United States last year was the heaviest on record totaling 1,622,051,000 pounds, notwithstanding the fact that mine and smelter production was lower than in the preceding year. The following tabulation compiled by the Boston News Bureau, apportions the sale of this huge tonnage, (pounds):

American Smelting & Refining Co.	
Cerro de Pasco	45,000,000
Company's own product at Baltimore, Perth Amboy Tacoma refineries	120,000,000
Utah Copper	119,000,000
Nevada Consolidated	64,600,000
Tennessee Copper Co.	17,500,000
Ray Consolidated	53,000,000
Chino	53,500,000
Mason Valley	14,600,000
Ohio Copper	7,400,000
Total	494,600,000
United Metals Selling Co.	Pounds.
Anaconda and North Butte (inc. smelt production)	271,000,000
Copper Range (Lake Copper)	30,000,000
Arizona Copper Co.	45,000,000
Tooele smelter (including Utah Cons. Mining Co.	10,000,000
Greene-Cananea	45,000,000
Giroux	5,000,000
Pennsylvania Salt Mfg Co.	6,000,000
Imports	30,000,000
Total	442,000,000
Phelps, Dodge & Co.	
Copper Queen smelter	132,000,000
Detroit Copper Co.	22,000,000
Calumet & Arizona	55,000,000
Total	209,000,000
American Metal Co.	
Old Dominion Copper Co.	30,500,000
Shannon Copper Co.	13,700,000
Granby	21,300,000
Imports smelt. and misc. inc. Ducktown	56,000,000
East Butte	14,400,000
Teziutlan Copper and Torreon Smelter (Mexico)	9,000,000
Total	144,900,000
L. Vogelstein & Co.	
United States Smelting	20,500,000
Matte, smelter material and imports	69,500,000
Orford Copper Co.	18,800,000
United Verde Copper Co.	35,000,000
Total	144,400,000
E. P. Earle.	
South Utah Mines and Smelters	1,700,000
Mexican imports	1,000,000
Japan imports	4,000,000

(Continued on page 90.)

BUSINESS TRENDS.

THE STOCK MARKET.

(From The New York Times.)

The month which has just closed will be remembered as one which brought a really remarkable transformation in practically all the financial markets of the world, no single feature of the great change for the better being more important in its immediate as well as in its ultimate effects than the great broadening which took place in the investment demand for securities. Last week put the finishing touches to a month's record which is not only notable but encouraging in the highest degree. Interest rates have come down, while the demand for investments has risen rapidly. Over the business world at large has come a change in sentiment which finds reflection in increased confidence for the future, but also in the more tangible fact that important industries are operating at a higher percentage of capacity, and that bank clearings, as one measure of the volume of trade, are showing increases after many weeks of contraction.

Europe played an important part in the further improvement which came about last week. The foreign markets bought American stocks on a very substantial scale. Just how much they did buy was a matter of guesswork, but estimates placed the amount of stocks which were purchased for foreign account during the month of January at 150,000 shares or more. Europe bought its own investment securities with much freedom, subscribed liberally to new issues, Governmental and others, and expressed its hopeful view of the outlook, particularly toward the end of the month, in a general rise on all the principal Stock Exchanges. A sharp contrast is here presented with the conditions which prevailed abroad last year, conditions which were one of the things which dragged on our own market, and which emphasized every unfavorable feature and minimized many favorable facts. The opinion was expressed in banking circles at the week's close that the European investment demand was likely to continue for some time. As much as this was suggested by the overwhelming subscriptions to the $87,000,000 Prussian loan, which was applied for seventy-one times over. Until the last week of the year Paris held more or less aloof from the movement toward renewed comfort in the financial markets, but on Thursday the Bank of France reduced its discount rate to 3½ per cent. and thereafter the open market rate fell as low as 3⅛ per cent. and the Bourse developed noteworthy strength.

A few figures will help to bring out clearly the change which has come about since the first of this year in our own stocks and bonds and in the three great public securities of Europe which are the standard bearers of their respective markets. This is what the record shows:

	Jan. 31, 1914,	Dec. 31, 1913,	Net Change.
Fifty stocks	72.97	67.50	+5.47
Forty bonds	89.24	86.40	+2.84
British consols	76.00	71.00¾	+4.00¼
French rentes	87.20	85.37⅛	+1.82½
German 3s	78.00	75.00	+3.00

A year ago stocks were declining in the early weeks of the year, and as the event proved supplied the keynote to the 1913 record on the Stock Exchanges. By the same token a most encouraging sign has been afforded for the course of business during the year whose first month has just come to a close.

The January record could hardly have been better. The foundation has apparently been laid in several directions for broad-scale improvement later in the year.

COMMODITY PRICES.

This table gives "Bradstreet's" index numbers (the totals of the prices per pound of ninety-six articles) since January 1, 1909.

	1909.	1910	1911.	1912.	1913.	1914.
Jan.	$8.263	9.231	$8.836	$8.949	9.493	8.885
Feb.	8.032	9.073	8.766	8.958	9.459	
Mar.	8.217	9.111	8.603	8.902	9.405	
Apr.	8.316	9.200	8.522	9.098	9.297	
May	8.302	9.039	8.458	9.270	9.139	
June	8.396	8.911	8.529	9 102	9.072	
July	8.457	8.925	8.594	9.112	8.952	
Aug.	8.504	8.822	8.657	9.159	9.011	
Sep.	8.591	8.952	8.819	9.215	9.100	
Oct.	8.748	8.927	8.806	9.451	9.156	
Nov.	8.964	8.877	8.892	9.478	9.220	
Dec.	9.126	$8.784	$8.982	9.546	9.229	
Year	$8.515	$8.989	$8.715	9.186	9.211	

BUSINESS TRENDS.

PIG IRON PRODUCTION.

Production of coke and anthracite pig iron as reported by the Iron Age:

Daily rate of production (Gross Tons)

	1910	1911.	1912.	1913.	1914
Jan. .	84,148	56,552	66,384	90,172	60,808
Feb...	85,616	64,090	72,442	92,369	.....
Mar...	84,459	70,036	77,591	89,147	
April.	82,792	68,836	79,181	91,759	.....
May..	77,102	61,079	81,051	91,039	.....
June .	75,546	59,585	81,358	87,619	
July..	69,305	57,841	77,738	82,601	.....
Aug. .	67,963	62,150	81,046	82,057	.....
Sep...	68,476	65,903	82,128	83,531	....
Oct...	67,520	67,811	86,722	82,133	
Nov..	63,659	66,648	87,697	74,453	
Dec..	57,349	65,912	89,766	63,987	

COMMERCIAL FAILURES.

Commercial failures in January were large in number and exceptionally heavy in point of liabilities. Total defaults, as reported by R. G. Dun & Company were 1,857 and supplied liabilities amounting to $39,374,347, against 1,814 in 1913 for $22,972,769, 1,897 for $19,770,530 two years ago, 1,663 for $24,090,649 in 1911, and 1,510 in 1910, when the amount was $32,015,754. From a numerical standpoint, the comparison with 1913 was fairly satisfactory and there were 40 fewer insolvencies than in 1912; but, owing to several reverses of exceptional size, the indebtedness was swelled far above normal.

One of the striking features of last month's returns was the unusual number of large failures, there having been 48 for $100,000 or more, with liabilities of $2,466,095. This compared with 28 similar defaults in the preceding year for $7,606,025, 23 in 1912 for only $3,869,343, 10 for $11,079,172 in 1911, and 38 in 1910, when the amount involved was $20,076,705. After eliminating the insolvencies of exceptional size, there remained 1,809 smaller suspensions, and the aggregate indebtedness of these was $16,908,252—an average of $9,347. In January, 1913, the number of failures for less than $100,000 was 1,786 and the liabilities were $15,366,744, the average being $8,604. The average for 1912, 1911, and 1910 was in excess of $8,000, but was considerably below that figure in all the other years back to 1900.

In the following table comparison is made of the number of manufacturing failures in the United States, covering two years, by leading classes of trade, and the liabilities reported in each class for January this year:

	—Number—		Liabilities
Manufacturers.	1914.	1913.	1914.
Iron and foundries ..	3	9	$414,500
Machinery, etc.	14	21	839,101
Woolens and carpets	4	2	227,209
Cotton, lace, etc.	4	4	162,100
Lumber and carpenters	41	47	2,406,491
Cloth and millinery .	80	63	546,265
Hats, gloves, etc. ...	21	5	327,300
Chemicals and drugs.	2	6	12,102
Paints and oils	1	4	7,600
Printing and engrav.	20	17	443,217
Milling and baking .	30	31	74,691
Leather and shoes ..	15	13	288,807
Liquors and tobacco.	11	14	142,604
Glass, earthen, etc...	18	13	311,101
All other	152	146	10,577,761
Total mfg.	407	395	$16,780,939

IDLE RAILWAY CARS.

The fortnightly bulletin of the American Railway Association shows that on January 15th there was a net surplus of freight cars on the lines of the United States and Canada of 214,889, that representing an increase of 26,039 over January 1st and an increase of 186,450 over the same period last year.

The fortnightly figures are given below, with the returns for other periods, figures representing surplus, except where otherwise indicated:

1914—		June 14 ..	63,927
Jan. 15	214,889	May 31	50,908
Jan. 1	188,850	May 15	50,294
1913—		May 1	39,799
Dec. 15	101,545	April 15	57,498
Dec. 1	57,234	April 1	57,988
Nov. 15	22,652	Mar. 15	37,775
Nov. 1	*1,842	Mar. 1	31,381
Oct. 15	*6,048	Feb. 15 ..	22,183
Oct. 1	10,374	Feb. 1	37,260
Sep. 15	40,150	Jan. 15 ...	28,439
Sep. 1	58,506	1912—	
Aug. 15	54,425	Dec. 31	17,053
Aug. 1 ...	58,445	Dec. 14	*34,392
July 15	69,405	Nov. 30	*36,401
June 30	63,704	Nov. 21 .. .	*51,112

* Net shortage.

THE TRUST MESSAGE.

President Wilson's message on "the subject of additional legislation regarding the very difficult and intricate matter of trusts and monopolies" delivered in person to Congress, Tuesday, January 20, 1914.

Advocates the following:

1. Effectual prohibition of interlocking directorates in all large corporations, manufacturing, commercial, banking and public service.

2. Giving Interstate Commerce Commission power to superintend and regulate financial operations by which railroads will in future secure funds for proper development.

3. Explicit definition of "the many hurtful restraints" of trade covered in blanket by the Sherman law.

4. The creation of a commission: (a) to act as a clearing house for information; (b) to aid the courts in decrees of dissolution, etc.

5. Explicit provision of penalties and punishments to fall upon individuals.

6. Prohibition of holding companies.

7. Giving private individuals the right to found suits upon facts and judgments in previous government suits, and extending the statute of limitations to run from conclusion of such government suits.

Recommended for consideration, as an open question, whether the right of an individual owner of stocks in various corporations to vote in all of them shall be restricted.

The message in full follows:

Gentlemen of the Congress:

In my report "On the State of the Union," which I had the privilege of reading to you on the 1st of December last, I ventured to reserve for discussion at a later date the subject of additional legislation regarding the very difficult and intricate matter of trusts and monopolies. The time now seems opportune to turn to that great question; not only because the currency legislation, which absorbed your attention and the attention of the country in December, is now disposed of, but also because opinion seems to be clearing about us with singular rapidity in this other great field of action. In the matter of the currency it cleared suddenly and very happily after the [illegible] and [illegible] in respect of the monopolies which have multiplied about us and in regard to the various means by which they have been organized and maintained it seems to be coming to a clear and all but universal agreement in anticipation of our action, as if by way of preparation, making the way easier to see and easier to set out upon with confidence and without confusion of counsel.

Legislation has its atmosphere like everything else and the atmosphere of accommodation and mutual understanding which we now breathe with so much refreshment is matter of congratulation. It ought to make our task very much less difficult and embarrassing than it would have been had we been obliged to continue to act amidst the atmosphere of suspicion and antagonism which has so long made it impossible to approach such questions with dispassionate fairness. Constructive legislation, when successful, is always the embodiment of convincing experience and of the mature public opinion which finally springs out of that experience. Legislation is a business of interpretation, not of origination, and it is now plain what the opinion is to which we must give effect in this matter. It is not recent or hasty opinion. It springs out of the experience of a whole generation. It has clarified itself by long contest and those who for a long time battled with it and sought to change it, are now frankly and honorably yielding to it and seeking to conform their actions to it.

The great business men who organized and financed monopoly and those who administered it in actual everyday transactions have year after year, until now, either denied its existence or justified it as necessary for the effective maintenance and development of the vast business processes of the country in the modern circumstances of trade and manufacture and finance; but all the while opinion has made head against them. The average business man is convinced that the ways of liberty are also the ways of peace and the ways of success as well, and at last the masters of business on the great scale have begun to yield their preference and purpose, perhaps their

judgment also, in honorable surrender.

What we are purposing to do, therefore, is, happily, not to hamper or interfere with business as enlightened business men prefer to do it, or in any sense, to put it under the ban. The antagonism between business and Government is over. We are now about to give expression to the best business judgment of America, to what we know to be the business conscience and honor of the land. The Government and business men are ready to meet each other half way in a common effort to square business methods with both public opinion and the law. The best informed men of the business world condemn the methods and processes and consequences of monopoly as we condemn them; and the instinctive judgment of the vast majority of business men everywhere goes with them. We shall now be their spokesmen. That is the strength of our position and the sure prophecy of what will ensue when our reasonable work is done.

When serious contest ends, when men unite in opinion and purpose, those who are to change their ways of business joining with those who ask for the change, it is possible to effect it in the way in which prudent and thoughtful and patriotic men would wish to see it brought about, with as few, as slight, as easy and simple business readjustments as possible in the circumstances, nothing essential disturbed, nothing torn up by the roots, no parts rent asunder which can be left in wholesome combination. Fortunately, no measures of sweeping or novel change are necessary. It will be understood that our object is not to unsettle business or anywhere seriously to break its established courses athwart. On the contrary, we desire the laws we are now about to pass to be the bulwarks and safeguards of industry against the forces that have disturbed it. What we have to do can be done in a new spirit, in thoughtful moderation, without revolution of any untoward kind.

We are all agreed that "private monopoly is indefensible and intolerable," and our programme is founded upon that conviction. It will be a comprehensive, but not a radical or unacceptable programme and these are its items, the changes which opinion deliberately sanctions and for which business waits.

It waits with acquiescence, in the first place for laws which will effectually prohibit and prevent such interlockings of the personnel of the directorates of great corporations—banks and railroads, industrial, commercial and public service bodies—as in effect result in making those who borrow and those who lend practically one and the same, those who sell and those who buy but the same persons trading with one another under different names end in different combinations, and those who affect to compete, in fact, partners and masters of some whole field of business. Sufficient time should be allowed, of course, in which to effect these changes of organization without inconvenience or confusion.

Such a prohibition will work much more than a mere negative good by correcting the serious evils which have arisen because, for example, the men who have been the directing spirits of the great investment banks have usurped the place which belongs to independent industrial management working in its own behoof. It will bring new men, new energies, a new spirit of initiative a new blood into the management of our great business enterprises. It will open the field of industrial development and origination to scores of men who have been obliged to serve when their abilities entitled them to direct. It will immensely hearten the young men coming on and will greatly enrich the business activities of the whole country.

In the second place, business men, as well as those who direct public affairs, now recognize, and recognize with painful clearness, the great harm and injustice which has been done to many, if not all, of the great railroad systems of the country by the way in which they have been financed and their own distinctive interests subordinated to the interests of the men who financed them and of other business enterprises which those men wished to promote. The country is ready, therefore, to accept, and accept with relief as well as approval, a law which will confer upon the Interstate Commerce Commission the power to superintend and regulate the financial operations by which the railroads are henceforth to be supplied with the money they need for their proper development to meet the rapidly growing requirements of the country for increased and improved facilities of transportation. We cannot postpone action in this matter without leaving the railroads exposed to many serious handicaps and hazards, and

the prosperity of the railroads and the prosperity of the country are inseparably connected. Upon this question those who are chiefly responsible for the actual management and operation of the railroads have spoken very plainly and very earnestly, with a purpose we ought to be quick to accept. It will be one step, and a very important one, toward the necessary separation of the business of production from the business of transportation.

The business of the country awaits also, has long awaited and has suffered because it could not obtain, further and more explicit legislative definition of the policy and meaning of the existing anti-trust law. Nothing hampers business like uncertainty. Nothing daunts or discourages it like the necessity to take chances, to run the risk of falling under the condemnation of the law before it can make sure just what the law is. Surely we are sufficiently familiar with the actual processes and methods of monopoly and of the many hurtful restraints of trade to make definition possible, at any rate up to the limits of what experience has disclosed. These practices, being now abundantly disclosed, can be explicitly and item by item forbidden by statute in such terms as will practically eliminate uncertainty, the law itself and the penalty being made equally plain.

And the business men of the country desire something more than that the menace of legal process in these matters be made explicit and intelligible. They desire the advice, the definite guidance and information which can be supplied by an administrative body, an interstate trade commission.

The opinion of the country would instantly approve of such a commission. It would not wish to see it empowered to make terms with monopoly or in any sort to assume control of business, as if the government made itself responsible. It demands such a commission only as an indispensable instrument of information and publicity, as a clearing house for the facts by which both the public mind and the managers of great business undertakings should be guided, and as an instrumentality for doing justice to business where the processes of the courts or the natural forces of correction outside the courts are inadequate to adjust the remedy to the wrong in a way that will meet all the equities and circumstances of the case.

Producing industries, for example, which have passed the point up to which combination may be consistent with the public interest and the freedom of trade, cannot always be dissected into their component units as readily as railroad companies or similar organizations can be. Their dissolution by ordinary legal process may oftentimes involve financial consequences likely to overwhelm the security market and bring upon it breakdown and confusion. There ought to be an administrative commission capable of directing and shaping such corrective processes, not only in aid of the courts but also by independent suggestion, if necessary.

Inasmuch as our object and the spirit of our action in these matters is to meet business half way in its processes of self correction and disturb its legitimate course as little as possible, we ought to see to it, and the judgment of practical and sagacious men of affairs everywhere would applaud us if we did see to it, that penalties and punishments should fall, not upon business itself, to its confusion and interruption, but upon the individuals who use the instrumentalities of business to do things which public policy and sound business practice condemn. Every act of business is done at the command or upon the initiative of some ascertainable person or group of persons. These should be held individually responsible and the punishment should fall upon them, not upon the business organization of which they make illegal use. It should be one of the main objects of our legislation to divest such persons of their corporate cloak and deal with them as with those who do not represent their corporations, but merely by deliberate intention break the law. Business men the country through would, I am sure, applaud us if we were to take effectual steps to see that the officers and directors of great business bodies were prevented from bringing them and the business of the country into disrepute and danger.

Other questions remain which will need very thoughtful and practical treatment. Enterprises, in these modern days of great individual fortunes, are oftentimes interlocked, not by being under the control of the same directors, but by the fact that the greater part of their corporate stock is owned by a single person or group of persons who are in some way intimately re-

lated in interest. We are agreed, I take it, that holding companies should be prohibited, but what of the controlling private ownership of individuals or actually co-operative groups of individuals? Shall the private owners of capital stock be suffered to be themselves in effect holding companies? We do not wish, I suppose, to forbid the purchase of stocks by any person who pleases to buy them in such quantities as he can afford, or in any way arbitrarily to limit the sale of stocks to bonafide purchasers. Shall we require the owners of stock, when their voting power in several companies which ought to be independent of one another would constitute actual control, to make election in which of them they will exercise their right to vote? This question I venture for your consideration.

There is another matter in which imperative considerations of justice and fair play suggest thoughtful remedial action. Not only do many of the combinations effected or sought to be effected in the industrial world work an injustice upon the public in general; they also directly and seriously injure the individuals who are put out of business in one unfair way or another by the many dislodging and exterminating forces of combination. I hope that we shall agree in giving private individuals who claim to have been injured by these processes the right to found their suits for redress upon the facts and judgments proved and entered in suits by the government where the government has upon its own initiative sued the combinations complained of and won its suit, and that the statute of limitations shall be suffered to run against such litigants only from the date of the conclusion of the Government's action. It is not fair that the private litigant should be obliged to set up and establish again the facts which the Government has proved. He cannot afford, he has not the power, to make use of such processes of inquiry as the Government has command of. Thus shall individual justice be done while the processes of business are rectified and squared with the general conscience.

I have laid the case before you, no doubt as it lies in your own mind, as it lies in the thought of the country. What must every candid man say of the suggestions I have laid before you of the plain obligations of which I have reminded you? That these are new things for which the country is not prepared? No; but that they are old things, now familiar, and must of course be undertaken if we are to square our laws with the thought and desire of the country. Until these things are done, conscientious business men the country over will be unsatisfied. They are in these things our mentors and colleagues. We are now about to write the additional articles of our constitution of peace, the peace that is honor and freedom and prosperity.

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AMERICAN CAN COMPANY'S ANSWER TO GOVERNMENT PETITION.

United States of America, Petitioner, VS. American Can Company and others, Defendants.

ANSWER OF

American Can Company, Sanitary Can Company, Missouri Can Company, Daniel G. Reid, Frederick S. Wheeler, Henry W. Phelps, Franklin Rudolph, Rensselaer H. Ismon, W. F. Dutton, Richard A. Burger, Frank D. Throop, William T. Graham, Edmund C. Converse, Francis L. Hine, James McLean, George G. McMurtry, William Henry Moore, Joseph W. Ogden, Ray L. Skofield, J. Hobart Moore, William Y. Bogle and George W. Cobb

George R. Wills, Hitch & Sheehan, John Barton Payne, Simpson, Thacher & Bartlett, L. V. Wells, Solicitors for the Defendants

I.

Parties and Object.

The joint and several answer of the defendants, American Can Company, Sanitary Can Company, Missouri Can Company, Daniel G. Reid, Frederick S. Wheeler (named in the petition Fred S. Wheeler), Henry W. Phelps, Franklin Rudolph, Rensselaer H. Ismon, W. F. Dutton, Richard A. Burger (named in the petition Roy A. Burger), Frank D. Throop, William T. Graham, Edmund C. Converse, Francis L. Hine, James McLean, George C. McMurtry, William Henry Moore, Joseph W. Ogden, Ray L. Skofield, J. Hobart Moore, William Y. Bogle and George W. Cobb, to the petition of the United States of America in the above entitled cause.

These defendants answering so much and such parts of said petition as they are advised it is material and necessary for them to make answer unto, say:

These defendants are not, nor is any of them, restraining interstate trade or commerce or foreign trade or commerce in tin cans, or attempting to monopolize, or monopolizing the same in violation of the Act of Congress of July 2, 1890, as alleged in said petition. On the contrary, interstate and foreign trade and commerce in tin cans is free and unrestrained, and there exists no monopoly, or, so far as these defendants are advised, any attempt to monopolize such trade and commerce.

II.

Description of the Parties.

The American Can Company (principal defendant), is a corporation organized and existing under the laws of New Jersey with its principal office at Jersey City, as alleged in said petition.

The principal office of the Sanitary Can Company is not at New York City, but at Fairport, New York.

The Missouri Can Company is not a corporation of Missouri, having its principal office at St. Louis, as alleged, but is a corporation of New Jersey having its principal office at Jersey City.

Frederick S. Wheeler is not a resident of the City of New York, but of Rye, New York. Henry W. Phelps is not a resident of the City of New York, but of Yonkers, New York. Franklin Rudolph is not a resident of Chicago, but of Winnetka, Illinois. Rensselaer H. Ismon is not a resident of New York, but of Maplewood, New Jersey. Richard A. Burger is not a resident of the City of New York but of Mamaroneck, New York. William T. Graham and Edmund C. Converse are not residents of New York, but of Greenwich, Connecticut, and are no longer directors of the principal defendant. Joseph W. Ogden is not a resident of New York, but of Morristown, New Jersey. J. Hobart Moore is not a resident of New York, but of Santa Barbara, California. William Y. Bogle is not President of the Sanitary Can Company as alleged, nor is he a resident of New York, but of Montclair, New Jersey. Joseph B. Russell is not a resident of Boston, but of Cambridge, Massachusetts. Michael Espert is not the lessor of the Illinois Can Company, but is the lessor of the land and building occupied by a factory of the principal defendant in Chicago.

III.

Description of the Industry.

It is true as alleged, that cans, containers and packages made of tin plate, are and have long been in common use through the

United States for packing, preserving and transporting foods and other articles. It is also true that since the organization of the principal defendant this use has greatly increased and many new uses for such containers have been found; and that such containers, while made in numerous shapes and sizes, are classified as packers' cans and as general line cans; and that packers' cans are classed as hole and cap (not hole top) and open top or sanitary cans. The latter are closed by double seaming the top (not by clamping). Most condensed milk cans and many cans for meat products are classified as packers' cans.

It is true as alleged that some cans are made by packers for their own use, but much the greater portion, as is most natural for many good reasons, are made by manufacturers who devote their exclusive efforts thereto. Such cans are shipped from the factory to the packer, often, but not generally, it is believed, in interstate commerce. It is not true, however, that the trade in packers' cans is being restrained or monopolized. The fact is that every packer or other person who desires, or deems it to his financial interest, to manufacture packers' cans may, without the slightest difficulty, obtain the necessary machinery and raw material and manufacture the same without restraint, and may buy cans from numerous competing manufacturers of such articles without restraint or interference.

It is true that in March, 1901, at the time of the organization of the principal defendant there were in the United States many persons, firms and corporations engaged in the manufacture of tin cans, but upon information and belief the defendants charge that they were not all independent of each other, or in competition with each other. On the contrary, it is believed, and is alleged that at that time, and for a long time prior thereto prices of cans had been largely governed, or affected by agreements or understandings among said manufacturers.

It is also true, that there were also in the United States a number of manufacturers of special machinery proper and necessary for making and sealing tin cans, and that their products were shipped more or less in interstate or foreign commerce to can manufacturers, but whether in active competition with each other, defendants are not advised and cannot affirm or deny.

Nor are defendants advised as to whether in quantity and value such business constituted a substantial and rapidly growing part of the commerce of the United States. It is also true, however, that there are now a great number of manufacturers of special machines for the making and sealing of tin cans which are being made, sold and shipped in interstate commerce in free and open competition with each other; and such has been the improvement, growth and development of can making machinery since the organization of the principal defendant, that the machinery in use in 1901 and then thought to be desirable, and, perhaps, indispensable, for can making purposes is now practically obsolete, and never in the history of the can making industry has there been such development and improvement in can making and in can making machinery as since 1901, and this improved machinery is now available to any and all persons who may desire to enter the can manufacturing field.

IV.

Formation of the Conspiracy.

These defendants and each of them deny that in 1900 and 1901 J. Hobart Moore, William Henry Moore, Daniel G. Reid, Frederick S. Wheeler, Henry W. Phelps, William T. Graham, George G. McMurtry, defendants, and one D. Wiley McCaughey and others, or any of them formed a combination and entered into a conspiracy for the purpose of restraining and monopolizing the interstate and foreign trade and commerce of the United States in tin cans by creating a single corporation, etc., as is alleged in Part IV. of the petition.

V.

1. Organization of the American Can Company, Etc.

It is true that in March, 1901, (but not in furtherance of any conspiracy) the principal defendant was incorporated under the laws of the State of New Jersey with an authorized capital stock, preferred and common, in the amounts alleged in said petition, and soon thereafter the amounts of said stock as alleged were issued.

It is also true that within a few months after its incorporation it acquired the plants and businesses named in said petition on pages 8, 9, 10 and 11, (part V. sub. 1) except as hereinafter stated, and that it issued in exchange therefor and for certain sums

of money, its preferred and common stock in the amounts alleged in said petition. It is also true that many of said plants were engaged in the manufacture of cans and carried on a large portion of the interstate and foreign trade in tin cans, at that time, but just what proportion these defendants are not advised, and cannot state, but deny that nearly all were previously in competition with each other.

It is not true, however, that the principal defendant acquired by purchase or otherwise the Wilson Factory, of Chicago Illinois, the Hoopeston Can Company, of Hoopeston, Illinois, the Great Western Can Company, Louisville, Kentucky, Louisville Can Company, Louisville, Kentucky, the North Lubec Can Co., North Lubec, Me., the Eastern Can Company, Baltimore, Maryland, or the Tyler Can Co., Baltimore, Maryland, named in the list of Vendors in said subdivision 1, part V.

Nor is it true that all of the vendors named in said list were engaged in the manufacture of tin cans.

As to the allegation that the total consideration, including the par value of the capital stock so exchanged was much greater than the actual value of the properties acquired, these defendants state that subsequent events have perhaps shown that such was the fact. But it is nevertheless true, that the value of the properties, patents, etc., so acquired was duly estimated by persons believed to have expert knowledge of the subject, and these estimates were made, submitted, and relied upon at the time, and such values with the moneys received, it was then believed, warranted the valuation made by said company in issuing its said stock.

As to the allegation that such purchases were not made in the normal course of business development, but pursuant to an alleged combination and conspiracy, and with the purpose and effect of unduly restraining competition in such trade and commerce and thereby restraining and monopolizing it, these defendants deny such allegation and say the motives and purposes of the organizers of the American Can Company in 1901 must be judged by the situation and the facts then existing, rather than by the situation which now prevails. Following the panic of 1893 came the greatest industrial development the country has ever known. The successful conduct of the war with Spain and its result greatly increased the industrial importance of the United States and emphasized the need of larger industrial units. The Supreme Court, in United States v. Knight, 156 United States 1, had in effect sanctioned the consolidation of manufacturing units into one large corporation and sustained the opinion of the legal profession, and of the business men throughout the country, that it was legal and proper to create a great and successful enterprise by the formation of a single large corporation and the purchase by it of many smaller units, and thereby to accomplish the many economies and improvements demanded by the times, as well as to respond to the need of the hour, for strong manufacturing organizations, and notwithstanding the act of Congress of July 2, 1890, aforesaid, very many of the successful enterprises which gave to this country such a preponderance in manufactures at home and abroad, were due to organizations similar to the American Can Company, created by American enterprise in the decade following the decision in the Knight case.

The can industry while it had long been in existence was largely conducted in lofts, in leased and unsanitary buildings, and by the crudest methods, and in the early days of the industry the raw material was wholly imported. The passage of the McKinley Bill was followed after a few years by the establishment of the tin plate industry on a firm basis. The advantage to the commerce and trade of the United States from the formation of such large and enterprising concerns as the American Can Company is very great. It was under these circumstances that the principal defendant was organized, not to restrain or monopolize trade, but to extend and enlarge the interstate and foreign trade of the United States, and to share in the natural growth of such business. And besides extending and enlarging such trade there has been great improvement in the quality of the product, a reduction of the cost to the consumer, and a greatly extended use of cans, and other containers for the distribution of food products throughout the country.

Further answering, these defendants say that the tin can industry of the United States has never been more healthy than than it is today. There are many plants, free competition, the industry is in the hands of enterprising men, with plants well

scattered throughout the United States, and the character of the product is better than at any previous period, and there is no restraint or monopoly or attempt to restrain or monopolize.

2. Restrictive Covenants.

It is true that restrictive covenants in the form set out in the petition were inserted in many, but by no means all, of the contracts whereby said plants and businesses were acquired, this not in furtherance of any unlawful combination or conspiracy but because such covenants were usual, and had been used in similar contracts from remote times. The fact, however, is that no importance has been attached to such covenants, and no attempt has ever been made to enforce any of them, and many of the more active and powerful competitors now in the trade are persons, and corporations, owned, controlled or managed by persons, who signed such covenants or by their immediate families, and this without objection or question from the principal defendant.

3. Acquisition of Control of Can Making Machinery.

Defendants deny the allegations that the principal defendant acquired control of most of the previously competing can making machinery plants, and most of the outstanding valuable patents for making such machinery in order to prevent the remaining competitors, or persons who desired to become such, from obtaining the necessary machinery, and that some of the corporations over which control was acquired were compelled to break contracts for the immediate installation of machinery. It is true that the purchases included the machinery and patents owned by the vendors, and in a few instances for the purpose of getting the requisite machinery, can making machinery plants and patents were purchased, but nothing like or to the extent charged in the petition.

Of the 13 plants alleged to be can making machinery plants and businesses thus acquired, set out on page 13 of the petition (part V. sub. 3) eight of them, to-wit: Crosby & Co., Chicago, Ill. (the concern owned by J. L. Board), Phelps & Co., Norton Tin Can & Plate Co., Black & Krebs, R. Tyne Smith Can Co., A Booth & Co., all of Baltimore, Maryland; Reynolds & Bro., Havre de Grace, Md.; Union Can Company, Hoopeston, Illinois, are all embraced in the list of original plant purchases set out on page 9 of the petition (part V. sub. 1) and are here erroneously repeated, and most of them—that is, Norton Tin Can & Plate Co., Black & Krebs, R. Tyne Smith Can Co., A. Booth & Company, Reynolds & Bro., and Union Can Company, were not can making machinery plants. J. L. Board, who did business as Crosby & Company, was. Phelps & Company made some machinery, but not automatic packers' can machinery. Rudolphi & Krummel, Chicago, named in said list, made no packers' can machinery, and it is believed that the Sprague Canning Machine Co., Chicago, Ill., was not a can machinery making plant. Horne & Danz Co., St. Paul, Minn., was an original purchase and was not a machinery plant. The Sleeper Machine Company of Boston sold but did not manufacture certain can machinery, not packers' can machinery.

This leaves only the Imperial Seamer Mfg. Co., Baltimore, Md., which was not incorporated and did not manufacture any cans or can making machinery, but owned certain patents.

The principal defendant made contracts with E. W. Bliss Co., Brooklyn, New York, and the Ferracute Co., Bridgton, New Jersey, (none with Charles Loeffler Machine Company), designed to insure to it sufficient machinery making capacity to meet its requirements; these contracts expired in 1907, nearly seven years ago, and were not renewed, and were limited to a certain class of machinery and did not, as these defendants are advised and verily believe, bind said companies generally, as alleged in the petition.

As to the charge that some corporations over which the control was acquired were compelled to break contracts, defendants deny except that it is true that in two instances the principal defendant requested E. W. Bliss Co., (which the principal defendant did not control) not to deliver certain machinery contracted for, for the reason that it infringed patents owned by the principal defendant. Beyond this, defendants allege that no competing can manufacturer, or persons desiring to become such, were prevented from obtaining the necessary machinery by or through any ownership or control which said defendant had by contract, patent or otherwise.

It is also the fact that while the principal defendant makes much of the machinery used by it in its factories it employs out-

side concerns to make machinery, not only the Max Ams Machinery Company, but other concerns not connected with the principal defendant by contract or otherwise.

Defendants deny that the principal defendant subsequently extended its control over the trade in can making machinery either by acquiring control of companies manufacturing such machinery or possessing patents thereon, or otherwise, as alleged in the petition.

It is true as alleged that when the principal defendant was organized the open top can as compared with the hole and cap can was of relatively small importance. Indeed, it is believed that at that time open top cans were not being largely manufactured, but is is not true that the defendants have attempted to restrain or monopolize the trade in open top cans by acquiring control of machinery for the manufacture thereof, or otherwise.

It is true the capital stock of the Independent Tin Can Company (not Independent Can Company) was purchased, but its only assets were four patents, which upon trial proved of little value and were abandoned. The patents did not cover machinery for making open top cans, and no open top cans were ever made as the result of such purchase.

It is true that the defendant Max Ams Machine Company became the owner of patents for machinery for making and sealing open top cans, but when or to what extent defendants are not advised. The Max Ams Machine Company issued a license to the Federal Can Company, as alleged in the petition, but this license did not permit the use of all of its machinery, but was limited to a single patent and a single application for a patent. The Federal Can Company did not, however, avail itself of said license, nor did it become a competitor of the principal defendant, nor, as defendants are advised and verily believe, did it manufacture a single open top can, nor did it build up a large business in interstate commerce.

The Max Ams Machine Company issued a license to the Sanitary Can Company, but said license was not exclusive as to all its patented machinery, and contained important exceptions.

It is not true as alleged in the petition that the principal defendant destroyed competition in the open top or sanitary can. On the contrary, it has greatly increased the manufacture and sale of such cans. The fact is that the Sanitary Can Company built up a considerable business in the manufacture and sale of these cans, but was not to any substantial extent in competition with the principal defendant, nor was the Max Ams Machine Company its competitor.

The principal defendant at the time referred to in the petition, while it had begun the manufacture of sanitary cans in a small way, was not then engaged in this manufacture on a commercial basis, and was not therefore in any sense a competitor of the Sanitary Can Company, nor affected by what is stated in the petition as the indirect competition with the Max Ams Machine Company. While it acquired the United Can Company, and through it the license issued to the Federal Can Company, neither the Federal nor the United Can Company, were engaged in the manufacture of the open top or sanitary cans.

In 1908 the principal defendant acquired the control of the defendant, Sanitary Can Company, not for the purpose of destroying competition as is alleged, but to develop the business of manufacturing the open top can. The open top sanitary can was the introduction of a new branch of the industry. At first, and for a considerable time it was experimental, and was not received with favor by packers. A number of persons, however, believed that it would mark a substantial advance in the right direction and would overcome the prejudice and embarrassments due to the use of solder in fruit and vegetable cans, and with this view the purchase was made, and now the sanitary can is being manufactured and sold in active competition by the leading can makers thoroughout the United States, and in many localities has superceded the hole and cap cans.

It is true that on December 15, 1909, the principal defendant and the Sanitary Can Company entered into a contract with the Max Ams Machine Company, some of the provisions of which are set forth in the petition. Said companies, however, did not agree to purchase annually from the Max Ams Machine Company a specific amount of its patent machinery for making the open top can, but did agree to purchase a certain amount of can making machinery, and the Max Ams Machine Company did

not bind itself for a period of 5 years not to sell any such machinery to or for the use of any other person. It did not at that time nor does it now control the manufacture of machinery for the making of open top cans. There are a number of different systems or kinds of machinery in use by the various manufacturers including the principal defendant for the making of such cans, other than the machinery owned, controlled or manufactured by the Max Ams Machine Company.

There is no contract existing between Max Ams Machine Company, Sanitary Can Company or the American Can Company which is in any sense exclusive or which interferes with the right of Max Ams Machine Company to manufacture machinery for making open top cans for other persons, firms or corporations.

4. Further Acquisitions of Can Making Plants.

Of the concerns the petition alleges, pages 16 and 17, (part V, sub. 4) to have been independent and competing can making plants and to have been purchased or leased by the principal defendant subsequent to 1901, many were not competing can making plants, and several have not only not been so purchased or leased, but are now among its active competitors. The Virginia Can Company, Buchanan, Virginia, the United States Can Co., Cincinnati, Ohio, have been since their formation, and now are in active competition with the principal defendant. The Lacrosse Can Co., Lacrosse, Wis., formerly also an active competitor, has been consolidated with the Wheeling Can Company, of Wheeling, West Virginia, a very formidable competitor of the principal defendant. The Independent (Tin) Can Company of New York, the American Solderless Can Co., New Jersey, were not can making concerns, each owned certain patents (and nothing else) which after a trial proved to be unsuccessful and were abandoned. The Western Can Co., and the Woodcock Can Co., of Chicago, were each in the hands of a receiver, and certain machinery only was purchased from the receiver after the companies had failed. The Western Canada Can Co., New Westminster, Canada, was not purchased or leased. The Boston Wharf Company of Boston, Michael Espert of Chicago, Freeman-Duncan Transfer & Realty Co. of Kansas City, are not and have never been in the can making business, but are landlords leasing real property only. The California Fruit Canners' Association, California, the Hawaiian Pineapple Co. (Ltd.), Honolulu, Hawaii, are customers and not can makers. The Missouri Can Company, St. Louis, Missouri, is not a purchase, but was organized by the principal defendant because, under the laws of Missouri it was not permitted to qualify to do business therein. Martin Wagner Company of East Brooklyn, Md., was one of the original purchases, and is named as such in the petition, page 9, as Martin Wagner Co. of Baltimore, Md., and is not a further acquisition.

Horne & Danz, St. Paul, was an original 1901 acquisition, and is so mentioned on page 13 of the petition, as one of the original machine making purchases.

The Philadelphia Can Company of Philadelphia, the Union Can Company of San Francisco, California, and the North Lubec Can Co., were not, nor were either of them purchased by the Can Company. The building of Phillips & Leonard, Cambridge, Md., known as the Cambridge Manufacturing Company of Cambridge, Md., was leased by the principal defendant in 1906 and occupied with its own machinery until 1908 when the machinery was removed, and the operation discontinued. The Kemiweld Can Co., Detroit, Michigan, is a fibre package concern, and makes no packers' or other tin cans. The United Can Company of California and the Sanitary Can Company have been heretofore mentioned herein. The Union Can Company of Rome, the only remaining company, was purchased and is now being operated at Rome, New York.

The allegation that the principal defendant has acquired and still retains can making plants of the Hawaiian Pineapple Company is an error. That Company never had a can making plant.

It is true that some packers have entered into long term contracts with the principal defendant to buy their cans exclusively for the period covered by the contract, but never at prices lower than the bare cost at which they themselves could have bought the raw material and made the cans, that is, unless because of inefficiency, small quantity manufactured, or for some other reason it cost them too much to make cans. Nor is it true that the principal de-

COMPARISON OF METAL PRICES.

	Range for 1911.		Range for 1912.		Range for 1913.		Closing
Pig Iron.	High.	Low.	High.	Low.	High.	Low.	Jan. 31. '14.
Bessemer, valley	15.00	14.00	17.25	14.00	17.25	14.25	14.00
Basic, valley	13.75	12.25	16.50	12.25	16.50	12.50	12.50
No. 2 foundry, valley	14.00	13.00	18.00	13.00	17.50	13.00	13.00
No. 2X foundry, Philadelphia	15.50	14.75	18.50	14.75	18.50	14.50	14.75
No. 2 foundry, Cleveland	14.25	13.25	17.75	13.25	17.75	13.50	13.25
No. 2X foundry Buffalo	14.25	13.50	17.25	13.50	18.00	13.00	12.75
No. 2 foundry, Chicago	15.50	14.50	18.00	14.50	18.00	14.00	14.00
No. 2 Southern, Birmingham	11.00	9.75	14.00	9.75	14.00	10.50	10.50
Scrap Iron and Steel.							
Melting steel, Pittsburgh	14.50	12.00	16.25	12.50	15.00	10.75	11.25
Heavy melting steel, Chicago	12.50	10.00	14.00	10.75	13.25	9.00	9.75
No. 1 R.R. wrought, Pittsburgh	14.25	12.15	16.25	13.00	15.75	11.50	12.75
No. 1 cast, Pittsburgh	14.00	12.25	15.25	12.35	15.00	11.50	12.25
Heavy steel scrap, Philadelphia	13.75	11.85	17.00	11.75	14.75	9.75	11.25
Iron and Steel Products.							
Bessemer rails, mill	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Iron bars, Pittsburgh	1.40	1.25	1.65	1.25	1.65	1.35	1.35
Iron bars, Philadelphia	1.35	1.20	1.67½	1.22	1.67½	1.22½	1.27½
Steel bars, Pittsburgh	1.40	1.05	1.40	1.10	1.40	1.20	1.20
Tank plates, Pittsburgh	1.40	1.10	1.50	1.10	1.50	1.20	1.20
Structural shapes, Pittsburgh.	1.40	1.10	1.50	1.10	1.50	1.20	1.20
Grooved steel skelp, Pittsburgh	1.30	1.15	1.45	1.15	1.45	1.15	1.15
Black sheets, Pittsburgh	2.20	1.80	2.25	1.80	2.35	1.80	1.95
Galvanized sheets, Pittsburgh	3.20	2.80	3.40	2.80	3.50	2.80	2.95
Tin plate, Pittsburgh	3.70	3.30	3.60	3.30	3.60	3.40	3.40
Cut nails, Pittsburgh	1.70	1.50	1.70	1.50	1.70	1.60	1.60
Wire nails, Pittsburgh	1.80	1.50	1.75	1.55	1.80	1.55	1.55
Steel pipe Pittsburgh	80%	81	79%	81%	79%	80%	79½%
Connellsville Coke at ovens.							
Prompt furnace	1.90	1.45	4.25	1.80	4.25	1.75	1.90
Prompt foundry	2.25	1.85	4.50	1.90	4.50	2.40	2.40
Metals—New York.							
Straits tin	48.50	37.60	51.05	42.05	50.70	36.75	40.00
Lake copper	14.37½	12.20	17.80	14.15	17.00	14.50	15.00
Electrolytic copper	14.25	12.00	17.75	13.95	16.87½	14.12½	14.70
Casting copper	14.12½	12.00	17.65	13.75	16.62½	13.87½	14.50
Sheet copper	19.00	16.00	23.00	19.00	22.00	19.75	20.25
Lead (Trust price)	4.50	4.25	5.10	4.00	4.75	4.00	4.10
Spelter	7.00	5.50	7.65	6.45	5.65	5.10	5.42½
Cooksons antimony	9.50	7.50	10.50	7.12½	9.00	7.25	7.25
Aluminum 98-99%	22.50	18.50	28.00	18.50	27.12½	18.50	18.87½
Silver	56¾	51	64¼	54¼	62¼	56¼	57¼
St. Louis.							
Lead	4.50	4.12	5.02½	3.90	4.72½	3.85	4.03¾
Spelter	6.85	5.20	7.50	6.25	5.85	4.95	5.25
Sheet zinc (f.o.b. smelter)	8.50	7.25	9.00	8.00	9.00	7.00	7.25
London	£	£	£	£	£	£	£
[illegible]	247	169	233	183¾	232	166¼	182¼
[illegible]	64	53	81¼	60¾	77	61¾	65¾
[illegible]	15	12	24¼	15	21	15	20
[illegible]	27	22	27	25	26	20¼	21½
[illegible]	26	23	29½	25	29	25¾	26

COMPARISON OF SECURITY PRICES.

	Range for 1911.		Range for 1912.		Range for 1913.		Closing
Railroads.	High.	Low.	High.	Low	High	Low.	Jan. 31,'14.
Atchinson Top. & Santa Fe..	116⅜	99⅞	111⅝	103¼	106⅝	90¼	99⅛
Atchin. Top. & San. Fe, pfd.	105½	100¾	104¼	101⅜	102¼	96	100¾
Baltimore & Ohio	109¾	93½	111⅝	101¼	106⅜	90⅛	96
Canadian Pacific	247	195⅝	283	226½	266¾	204	219⅛
Chesapeake & Ohio	86¾	68¾	85¼	68¼	80	51⅛	67
Chicago, Mil. & St. Paul	133½	105¾	117⅛	99⅛	116¼	96¾	106⅝
Erie R. R.	38⅜	27¼	39⅜	30	32½	20¼	31⅛
Great Northern, pfd.	140	119	143⅛	126	132⅛	115½	132½
Lehigh Valley	186⅞	151	185¾	155⅞	168⅜	141¼	155½
Louisville & Nashville	160¾	136½	150	138	142¼	126¼	140⅜
Missouri, Kansas & Texas ...	38⅛	27	31⅝	25½	29⅛	18⅛	23⅞
Missouri Pacific	63	33¼	47⅝	35	43⅝	21¼	28¼
New York Central	115½	99⅞	121⅛	106⅛	109¾	90⅜	96⅛
N. Y., N. H. & Hartford ...	151⅛	126⅞	142¼	126	129⅞	65⅝	75¼
Northern Pacific	137⅝	110¾	131½	115⅜	122⅝	101¼	117¾
Pennsylvania R. R.	130⅛	118¾	186¼	119⅞	123¾	106	115
Reading	161	134	179¼	148⅛	171¾	151⅜	169⅝
Rock Island	34⅜	22	30½	22⅝	24⅝	11⅝	13
Southern Pacific	126⅜	104½	115⅝	103½	110	83	99⅝
Union Pacific	193⅜	153½	176⅜	150¾	163¾	137¾	164⅛
Wabash	18¾	5¾	9½	3¾	6	2	2⅝
Industrials.							
Amalgamated Copper	71⅝	44¾	92¾	60	80½	61⅝	77
Am. Beet Sugar	59¾	39¾	77	46⅝	50⅛	19¾	27½
American Can	12½	8⅞	17⅝	11¼	46⅞	21	33⅜
American Can pfd.	93⅛	77	126¼	90⅝	129½	80½	95¼
Am. Car & Foundry	58¼	42⅜	63⅝	49⅜	56⅜	36½	51¼
Am. Cotton Oil	62⅜	41⅝	60⅛	45½	57⅜	33½	44
Am. Locomotive	43¼	32⅛	47½	31⅜	44½	27	36⅝
Am. Smelting & Refining	83⅞	56⅝	91	66½	74¾	58½	69
Brooklyn Rapid Transit	84⅝	72	94½	76¾	92¾	83¾	91⅞
Chino Copper	27½	16½	50⅜	25	47⅜	30⅜	41⅞
Colo. Fuel & Iron Co.	36⅜	25	43⅜	23⅝	41½	24½	33½
Consolidated Gas	148½	128¾	149½	135¾	142⅝	125⅛	137¼
General Electric	168⅜	142	188½	155	187	129¾	147½
Interborough Metropolitan ..	20⅜	13⅛	22	16¼	19⅝	12⅜	15⅞
International Harvester	129⅜	99⅛	126⅛	105¼	111½	96	111
International Steam Pump ...	44	23	34	12	18¼	4½	9
Lackawanna Steel	48	30	55⅛	28	49⅞	29⅛	39
National Lead	59	42½	68⅜	51⅛	56¼	43	51
Ray Consolidated Copper	19	13	24⅛	16	22	15	19
Republic Iron & Steel	35½	18	55⅛	15¾	28⅜	17	26⅞
Republic Iron & Steel, pfd...	99½	74⅛	93⅝	64½	92¼	72	89
Sloss-Sheffield	56¼	34	59¾	39¼	45⅛	23	35
Texas Co.	136½	74½	130⅝	81	132½	89	144½
U. S. Rubber	48⅜	30½	67⅞	45¼	60⅜	51	59¾
U. S. Steel Corporation	82⅛	50	80¾	58¼	69⅛	49⅞	66⅝
U. S. Steel Corporation, pfd.	120⅞	103	117	107¼	110¾	102½	112¾
Utah Copper	57⅞	38	67½	52½	60⅝	39⅝	55⅛
Va.-Carolina Chem.	70⅜	43⅛	57¼	40¾	43⅝	22	31⅛
Western Union Telegraph ...	84½	71⅝	86¼	72	75⅛	54⅜	63⅜

fendant can offer such prices, because of its advantageous contract with the American Sheet & Tin Plate Company. It does make long term contracts with packers and other users of cans (as do its competitors) because being in the can business it can make cans cheaper than people who are not so engaged and it has for good honest business reasons been able to induce some packers to make such contracts because they deemed it to their interest to do so, but there are a very large number of packers throughout the country who prefer to make their own cans and do so, and there are many packers who make short term contracts, or buy on open order. The field is entirely open for them to make their own cans, or to buy them from regular can makers, as they deem for their best interest, as is conclusively shown by the fact that many packers throughout the country are now making their own cans.

5. Dismantling of Plants.

It is true that after the company was organized and work commenced that many plants were dismantled as alleged in said petition. Whether such plants had prior to their purchase been in active and profitable competition with each other, the defendants are not advised and cannot state. It was found that many of the plants were in leased premises, badly located, poorly equipped and not suited for economical distribution or management and were therefore in many cases consolidated with some other plants and sometimes dismantled and a few were destroyed by fire. The fact nevertheless remains that the dismantling of inferior plants, the consolidation of the manufacture in the plants of higher efficiency and better location was one of the most important steps in realizing the economic advantages which flow from larger units in manufacture. The plants which continued to be operated were greatly enlarged, by the use of the machinery taken from such dismantled plants, or by the use of new machinery in the same plants, and new plants were built at central points better suited for economic distribution, so that the capacity was not lessened but [illegible]

6. Preferential Contract With The American Sheet & Tin Plate Co.

It is true that some of those who took part in the organization of the principal defendant also took part in the organization of the American Tin Plate Company, and that two of the defendants are now directors of the United States Steel Corporation, which it is believed owns all the stock of the American Sheet & Tin Plate Co. Defendants are advised that the latter company does not produce approximately 60 per cent. of the domestic output of tin plate, as is alleged in the petition.

There have been contracts between the American Sheet & Tin Plate Co. and the principal defendant for the sale and purchase of tin plate, one of which is now in force, but these contracts have not resulted from any personal influence or favoritism, but have been mutually advantageous, and have given the principal defendant no advantage in price or otherwise which the volume of its purchases and the character and the continuity of its orders have not entitled it to. It is confidently believed that the principal defendant could have gotten its tin plate at least as cheaply as under these contracts by manufacturing its own supply or by purchasing it from other tin plate manufacturers. It has not been because of such contracts that the principal defendant has been able to make, and has actually made, and sold cans to certain packers at less prices than those at which some of such packers could buy tin plate and make their own cans. In so far as packers have abandoned making their own cans and bought them from the principal defendant it has been because in an open market and after free and open competition, not only as against competitors but against the packer himself, the principal defendant has been able to satisfy such packer that it was for his interest to purchase, and in this there is nothing unlawful or remarkable because of the wisdom contained in the saying "every man to his trade."

The defendants deny any such control as is alleged in part V, sub. 6 of the petition.

7. Unfair Practices.

These defendants deny that since the formation of the principal defendant in 1901, or at any time during the present management the principal defendant has controlled or increased the general market price of tin cans. It does fix the prices for its own output as it in the very nature of things is bound to do, but these defendants deny that its predominance in the industry is so great that those prices are fol-

lowed of necessity by other manufacturers and thus all substantial price competition is eliminated. Competition has not been eliminated. On the contrary it is very active and energetic. Nor is it true that the principal defendant has exercised or does exercise its power to lower or raise unduly and arbitrarily the price of its products. The fact is that the price is controlled by the cost of raw materials and the cost of production, and the price of tin cans is less now than formerly notwithstanding the fact that the quality is much better and wages of employees are higher. Nor is it true that the principal defendant has acquired any control over the trade in open top or sanitary cans, either through the contract of December 15, 1909, with the Max Ams Machine Company or otherwise. Nor is it able to fix, nor does it arbitrarily fix a higher price for such cans than for others, nor is it true that they cost no more to manufacture. On the contrary the cost of production is greater.

Defendants deny each and all of the allegations contained in paragraphs (b), (c) and (d) of Subdivision 7 of part V of said petition.

The matter of making long term contracts is now and has ever been a matter of negotiation and bargaining between the seller and the buyer. The principal defendant offers its customers some reduction in price if they agree to buy their requirements for a fixed time. This is not only its practice but it is believed is the practice of its competitors and of substantially all the manufacturing concerns. The advantages to both the seller and the buyer are many and this is especially true in business such as the packing business where the requirements are for a short season. The packer must have his cans when the crops are ripe, and unless he can get them at that time great loss will result. By making long term contracts with substantial concerns he may confidently rely on being served while if he relied on buying his supply when the season opened he might find himself unable to obtain his requirements. Instead of being compelled to enter into such contracts the packer usually much prefers them, because the advantages to him are many. No force, threat, compulsion or other undue method is used to induce the making of such contracts.

VI

Effect of Conspiracy: Present Control of the Trade.

These defendants and each of them deny that there is in the can business any unlawful combination or conspiracy. It denies any restraint of trade or monopoly. It denies that it controls the greater portion of such trade and commerce. On the contrary, the total volume of the business of the principal defendant is less than one-third instead of more than one-half, as the petition inferentially alleges. Nor is it true that it has power, through its control or otherwise, to fix prices, nor does it fix prices at which cans are sold in interstate trade and commerce. Nor has it made excessive profits on the actual value of the assets employed by it in such trade.

Since the formation of the principal defendant, the industry has grown enormously, but its share thereof has continually diminished—demonstrating that it exercises no monopoly, restraint or domination.

The keenness and growth of competition are shown by the history of one of the competitors of the principal defendant, which started business in 1905 with a capital stock of $500,000. It now has a capital stock of $13,500,000. In the year of 1905 it used 175,000 boxes of tin plate. It started with one factory in New York State, and one in Illinois; it now has two factories in Illinois, three factories and a machine shop in New York, two factories in Maryland, and one factory and a tin plate mill in Pennsylvania.

And more than 200 concerns are now competing with the principal defendant, besides the very large number of packers and others, who make their own cans and other articles such as are made by the principal defendant.

Prayer.

These defendants, and each of them, deny that they have violated, or attempted to or intended to violate, the said Act of July 2, 1890, or any provision thereof, and deny that they are now engaged in violating said Act, or are threatening or intending so to do, and they respectfully submit that this Honorable Court should not grant any relief prayed for in the petition herein

or any other relief in the premises, and now having answered as fully as they are advised it is material or necessary for them to answer, they pray to be hence dismissed.

American Can Company, Sanitary Can Company, Missouri Can Company, Daniel G. Reid, Frederick S. Wheeler, Henry W. Phelps, Franklin Rudolph, Rensselaer H. Ismon, W. F. Dutton, Richard A. Burger, Frank D. Throop, William T. Graham, Edmund C. Converse, Francis L. Hine, James McLean, George G. McMurtry, William Henry Moore, Joseph W. Ogden, Ray L. Skofield, J. Hobart Moore, William Y. Bogle, George W. Cobb.

By George R. Willis.

213 Cortland Street, Baltimore, Md.

TOPICAL TALKS ON IRON.

XI. Steel and Iron.

Prior to the advent of the Bessemer and open hearth processes of steel making, the wrought product of commerce was chiefly iron. The steel made involved a limited tonnage and was practically altogether high carbon material, susceptible to taking a temper. Both the new steel making processes became technically successful in the decade of 1850, but it was not until the seventies that the tonnage became important. While generally the feature of the new variety of steel was that it was "mild" or low carbon steel as compared with temper steel, the fact is that the first large employment was in the manufacture of rail steel, which if not as hard as tempered steel was at any rate very much harder than wrought iron. It was the Bessemer process which came into general vogue, open-hearth trailing well behind, though not nearly as far behind in England as in the United States.

In the United States there were two entirely separate periods in the supplanting of wrought iron by steel. The first covered rails only, and fell in the decade of the seventies. The second covered various other products, and fell in the fore part of the nineties. Complete statistics are lacking to show precisely how steel supplanted iron in this second period, but it may be stated that while steel was coming to the front iron production continued to grow through the year 1890, while in the depression which started in 1893 iron suffered a complete eclipse.

Why did steel supplant iron? The general answer would be, because it was better and cheaper, but it is interesting to consider the specific points. Steel showed greater tensile strength, greater uniformity in physical characteristics and greater regularity of cross section when rolled. In what was roughly referred to as "toughness" iron was superior; it would stand more bending, a quality usually of no great importance. It required an expert to bend iron hot; to the uninitiated iron had a wonderful faculty for breaking when hot, although the expert could do almost anything with iron of fairly good quality. Steel requires much less careful handling.

For a few years rolled steel sold at average prices higher than iron, and when steel dropped to the same level as iron it was not because the steel cost less to make, but because it cost less to roll. Inasmuch as the iron mills were quite well organized by the Amalgamated Association, and the workmen insisted upon 10% advance over iron for rolling steels, a conflict was inevitable, for the manual and mental effort in rolling steel was much less per ton than was in rolling iron. The greatest conflict was that at Homestead, in July, 1892. The Carnegie Steel Company held the bag. If there had not been that great conflict there would have been many others. A principle was to be settled and owing to the attitude of the workmen it could not be settled amicably and in conformity with the actual facts. That the views of the men upon rolling steel and iron were absurd and were not inclined to change is illustrated clearly and forcibly by the interesting fact that it was just twelve years after the Homestead battle that rolling steel sheets was put on the same basis as rolling iron sheets. Until the scale signed for the year 1904-5, the Amalgamated Association scale regularly called for rates on steel 10% higher than rates on iron, though everyone knew it was much easier to roll steel than iron. Even at that time the

change might not have been made had it not been that there was a heavy general reduction, putting the new rate on steel below the old rate on iron.

Eventually there came a time when steel was cheaper in the making as well as cheaper in the rolling. The exact time cannot be fixed, because the overhead entering into the cost sheet was large, and the overhead for iron mills could not be figured accurately since they were being put out of business and there was no proper standard by which to value them. It has been said, indeed, that the reason the Carnegie Steel Company reached its position of unquestioned supremacy in the late nineties was simply because it chanced to be the one concern best able to finance the change from iron to steel. Undoubtedly there were many iron men at that time who had dreams of what might have been if they had had more capital, more confidence in steel, and more courage generally. Many an iron mill fell by the wayside when if conditions had been just a little different it might have turned to steel and made a great success.

A definite date cannot be set for the time when iron definitely yielded to steel as rail material, for there were some curious swings. The year of maximum iron rail production was 1872, but that remained the year of maximum production of iron and steel rails combined until 1879, the Jay Cooke railroad panic of September, 1873, ushering in conditions which greatly reduced rail consumption. Through 1876 iron rail production exceeded steel rail production while in 1877 and subsequent years steel rail production greatly predominated. The suddenness of the reversal is shown by the following statistics of rail production in gross tons:

	Steel.	Iron.	Total.
1876	368,269	417,114	785,383
1877	385,865	296,911	682,776

As noted, the maximum production of iron rails was in 1872, and now we see that steel rails passed iron rails in 1877, but there is the further statistical point that in 1880 iron rail production rose to 440,859 tons, so that the record of 1877 was not entirely conclusive. It would appear that the demand for rails had grown to such an extent that the railroads had to fall back on iron rails to an extent, for 1880 showed a steel rail production of 864,353 tons, which must have taxed the capacity of the steel mills.

There was a relatively long interval before steel made great inroads in any other direction. The next commodity in which steel established supremacy seems to have been nails, and here there was a double change. First there was a change from iron cut nails to steel cut nails, and then a very rapid change to wire nails, in which latter commodity iron hardly entered at all. In 1886 iron cut nails greatly preponderated over steel cut nails, while next year steel slightly preponderated over iron. The wire nail industry was in its infancy, the estimated production in 1886 being 600,000 kegs, against 8,160,973 kegs of cut nails. Six years later, in 1892, wire nails passed cut nails, and the cut nails were then almost entirely steel.

The next great commodity to be made of steel was structural shapes, but that was a case of the establishment of a great industry, rather than of a supplanting of iron by steel. In the case of rails, the greatest advantage of steel was its hardness. In the case of nails the great advantage was that steel could readily be drawn into wire. In the case of structural shapes the strength was much greater, for two reasons; (1) Greater tensile strength of the material, per square inch of cross section; (2) Greater strength of the section, apart from greater fiber strength, due to the fact that steel could be rolled with much thinner web, thus distributing the metal to better advantage, or, in technical terms, increasing the "radius of gyration" of the beam or channel.

This is merely a "Topical Talk," not an attempt to present a complete history, and no effort is made to trace the change from iron to steel in all commodities. Having observed the particular circumstances which surrounded the change in rails, in nails and in structural shapes, it is interesting to pass from these to pipe, for in this product an entirely separate set of conditions entered. There were two desiderata which did not present themselves in the case of the other commodities, ease in welding and ease in threading. In the early days there were grave doubts about steel welding; some old timers held that the important difference between iron and steel was that iron would weld and steel would not. The dies used for threading iron pipe would not work well in threading steel pipe. The first welded steel pipe of full commercial

quality made in the United States appears to have been an experimental lot of 30 tons made at the Riverside Works, Wheeling, W. Va., in August, 1887, as detailed in a paper by the superintendent of the tube department, Thomas J. Bray, read before the Engineers' Society of Western Pennsylvania on January 17, 1888. There had previously been a number of experiments at various works, which were far from successful. There was no sudden change to steel as a result of the successful experiment at Riverside. The National Tube Works Company, McKeesport, which was by far the largest tubular goods interest, having been engaged in the manufacture of iron pipe for many years, while the pipe department at Riverside was only added in 1887, did not take up the matter seriously until 1892, when its general manager and general superintendent made a thorough investigation of steel pipe manufacture abroad, their report resulting in the addition of a steel plant at McKeesport to furnish material for pipe making. There are no statistics of pipe production, but these general references indicate that the supplanting of iron by steel occurred at a distinctly later date in pipe than in structural shapes.

IRON AND STEEL.

PIG IRON IN JANUARY.

The activity in pig iron which contrasted December with immediately preceding months continued through January, and right at the close of January the thread was taken up by steel making pig iron in the Pittsburgh-valley district, with the almost unprecedented occurrence of large sales being made at a considerable advance without there having been any important transactions at the low point.

The buying of foundry iron has not been heavy, in the light of the normal consumptive requirements of the purchasers, but with production at so low a level it has been ample, apparently, to arrest the decline and place the whole market in a firmer position. At the beginning of February there is fairly large enquiry still in the market, and all the iron enquired for may not be placed. The market has probably been bought to a standstill, because the operating capacity was light, and few if any of the idle furnaces will blow in unless they are assured considerably higher prices than have ruled lately.

There is a wide range in the cost of producing pig iron at different furnaces, and as merchant furnace production began to decline last March, when open market prices averaged more than $3 a ton higher than at present, it is evident that there are many furnaces out of blast which will not be brought into the market except by a very material advance.

In the central west the position is that last year's decline not only discounted a prospective reduction in Lake Superior ores for the 1914 season to the 1912 basis, but discounted also some reduction in Connellsville coke and even then probably passed below the cost line of furnaces which must buy these raw materials. The Connellsville coke market did not decline as much as expected, being now fairly well established at $1.90 to $2, with prospects of advances rather than declines, while in the case of ore it is a question whether there will be a reduction to the 1912 basis, which would be reducing Bessemer ores 65 cents and non-Bessemer ores 55 cents, from the 1913 season prices. There is a bare possibility that there will be no reduction. The position of the ore interests is that they will hold off as long as possible from naming prices, possibly until April, since all the indications are that the news from week to week will be favorable.

On account of these conditions and prospects the idle merchant furnaces will be slow in concluding to go into blast and it is very probable that advances of from $1 to $2 a ton will be required to increase production materially, say by one-third of the 30% decrease which occurred from March, 1913, to January, 1914.

Price Changes.

The Bessemer market underwent a sharp decline early in January, until some round tonnages were sold at the record low price of $12 at furnace, and after accumulating a comfortable tonnage of orders the furnaces marked up prices sharply, nominally to $13. The Cleveland market also de-

IRON AND STEEL.

veloped further weakness early in January, but recovered at the close of the month. The Philadelphia market had reached its low point in December, and strengthened steadily in January. The southern market displayed some vagaries, appearing at one point strong and at another point weak, and the only explanation of the conflicting news was that the furnaces desired to let in favored consumers at special prices.

The valley market showed particular weakness in basic iron early in January, some iron going at $12.25, furnace, though the open quotation did not pass below $12.50. In the closing days of the month considerable enquiry appeared and it developed that there was no iron available at the $12.50 figure which had been quoted as the market. On February 3rd the Youngstown Sheet & Tube Company, recognizing the suddenly acquired strength of the market, bought nearly 50,000 tons at $13, and a day later there were purchases of about 15,000 tons at the further advanced price of $13.25, valley furnace. The transactions have shown clearly that the prices of $12.25 and $12.50 were exceptional and did not represent a trading market. While apparently the buyers who paid $13 and $13.25 had waited too long, the actual fact probably is that there was no time at which they could have bought their large tonnages at much under $13.

The record of the general pig iron market, as shown by our **composite pig iron**, has been as follows, January not taking cognizance of the advance in basic disclosed by transactions in the early days of February just mentioned:

	On first of month	Change during month.
January (1913)	$17.480	—17.5c
February	17.275	—33.0
March	16.945	—32.0
April	16.621	—61.0
May	16.015	—76.5
June	15.250	—55.0
July	14.700	—25.0
August	14.450	+17.5
September	14.625	+15.0
October	14.775	—20.0
November	14.525	—47.5
December	14.050	—50.5
January (1914)	13.545	—12.0
February	13.425	

PIG IRON PRICES.

(Averaged from daily quotations, at Philadelphia, Buffalo, Cleveland and Chicago; prices are delivered).

	Bessemer, Valley	Basic, Valley	No.2 fdy, Phila.	Basic Phila.	No. 2X fdy, Phila.	No. 2 fdy Buffalo.	Cleveland.	Chicago.	Birmingham.	Ferro-manganese.*	Furnace coke†
1913—											
Jan.	17.25	16.50	17.50	18.00	18.49	17.50	17.75	18.48	13.72	65.00	3.85
Feb.	17.25	16.43	17.12	17.75	18.23	17.22	17.41	17.87	13.46	65.00	2.60
Mar.	17.20	16.14	16.60	17.50	17.81	16.79	16.75	17.75	13.04	64.00	2.47
April	17.00	15.87	15.66	17.00	17.49	15.96	15.41	17.60	12.60	61.00	2.20
May	17.00	15.25	14.73	16.50	16.77	15.58	15.56	16.67	11.74	61.00	2.15
June	16.34	14.50	14.18	16.50	16.26	14.43	14.95	16.24	10.89	61.00	2.20
July	15.86	14.40	13.88	15.90	15.66	14.01	14.68	15.38	10.50	59.00	2.50
Aug.	15.63	14.09	13.94	15.25	15.56	14.20	14.50	15.44	10.85	56.70	2.50
Sept.	15.75	14.00	14.00	15.25	15.97	14.25	14.55	15.50	11.20	54.50	2.37
Oct.	15.67	13.97	13.83	15.25	15.94	14.25	14.73	15.50	11.48	50.28	2.10
Nov.	15.23	13.28	13.57	15.13	15.61	13.96	14.35	15.43	10.80	50.00	1.88
Dec.	14.95	12.83	13.38	14.75	14.98	13.92	13.76	14.83	10.50	47.00	1.77
Year	16.26	14.77	14.87	16.23	16.56	15.12	15.37	16.39	11.73	57.87	2.38
1914—											
Jan.	14.06	12.51	13.00	14.25	14.69	12.76	13.30	14.35	10.63	45.42	1.88

*Contract price, f.o.b. Baltimore; †Prompt, f.o.b. Connellsville ovens.

IRON AND STEEL.

STEEL IN JANUARY.

Our review three months ago closed with the words: "There may easily occur an improvement early in the new year, and with stocks reduced to the minimum at all points, and production greatly reduced, any such improvement is likely to help the market greatly and bring about a more rapid and more extensive improvement in the situation as a whole than now seems to be expected by either buyers or sellers."

The prediction contained in the above paragraph has been fully verified, but we do not make the quotation on that account, but because we wish to emphasize the causes which we outlined three months ago as likely to produce this improvement. The trade in some quarters has grown altogether too hopeful and needs to be reminded that the increased buying which has lately occurred is fairly attributable more to depletion of stocks than increase in actual consumption, and that the better operation of mills is more by way of favorable comparison with extremely light operations in December than it is by way of quickly attaining a rate of operating at full capacity.

The steel trade still has its future largely before it; something has been realized but much more must yet come out, by way of increased ultimate consumption, before prosperity can be considered fully restored.

To depict the course of the steel trade and its present position three things are to be considered: bookings, prices, production. In bookings, there was in January a further gain over the improved rate which began to be manifested late in December. In exceptional cases bookings of actual orders with shipping instructions reached a rate in excess of full capacity, but as a rule the average was much less than capacity, being however probably near 75% of capacity. Of contracting, subject to future specification, there was considerable, though apparently only in bars, plates and shapes was there any considerable contracting for second quarter.

Prices showed an upward trend in January, sheets leading, with an advance of a dollar a ton, to 1.85c basis, in the first week. Later the leading interest moved up to a basis of 2.00c, and independents gradually withdrew lower prices to such an extent that at the close of the month the market was openly quotable at 1.95c to 2.00c, or a total advance of $3 a ton.

Wire products follow sheets, a special price of $1.50 on nails, put out late in December, being withdrawn early in January.

Bars, plates and shapes had found their

FINISHED STEEL PRICES.

(Averaged from daily quotations, f.o.b. Pittsburgh.)

	Shapes.	Plates.	Bars.	Pipe.	Wire.	Wire Nails.	Cut Nails.	Sheets Black.	Sheets Galv.	Tin plate.	Composite Finished steel.
1913—											
January ...	1.50	1.50	1.40	80	1.55	1.75	1.70	2.32	3.47	3.60	1.7737
February .	1.45	1.45	1.40	80	1.55	1.75	1.70	2.35	3.50	3.60	1.7625
March	1.45	1.45	1.40	80	1.56	1.76	1.70	2.35	3.50	3.60	1.7646
April	1.45	1.45	1.40	79¾	1.60	1.80	1.70	2.35	3.45	3.60	1.7743
May	1.45	1.45	1.40	79	1.60	1.80	1.70	2.35	3.40	3.60	1.7786
June	1.45	1.45	1.40	79	1.55	1.75	1.70	2.29	3.38	3.60	1.7719
July	1.45	1.45	1.40	79	1.50	1.70	1.70	2.25	3.31	3.60	1.7600
August ...	1.45	1.44	1.40	79	1.47	1.67	1.60	2.20	3.25	3.60	1.7400
September..	1.40	1.40	1.40	80	1.43	1.63	1.60	2.12	3.17	3.60	1.7093
October ..	1.39	1.36	1.39	80	1.40	1.60	1.60	2.04	3.08	3.50	1.6779
November	1.34	1.29	1.30	80	1.40	1.60	1.60	1.98	2.98	3.40	1.6203
December .	1.34	1.21	1.22	80	1.35	1.55	1.60	1.90	2.90	3.40	1.5558
Year	1.42	1.41	1.38	79¾	1.50	1.70	1.66	2.21	3.28	3.56	1.7241
1914—											
January ...	1.29	1.20	1.20	80	1.35	1.55	1.60	1.85	2.80	3.40	1.5394

IRON AND STEEL.

low level in December at a general quotation of 1.20c, with 1.15c generally done in the Chicago district, even on contracts, and 1.15c done quite generally in other districts when there was a large prompt tonnage involved.

On the first business day in February the large mills began advancing bars, plates and shapes by $1 a ton, making the open quotation 1.25c for first quarter and 1.30c for second quarter, though possibly 1.20c is now as easily done on prompt business as 1.15c was formerly done on similar business. On the same day the American Steel & Wire Company advanced its prices on wire products $1 a ton, to a basis of $1.60 for nails, while the National Tube Company decreased discounts on steel pipe by a half point, equal to a dollar a ton, and advanced oil country goods by about the same amount.

In a general way it may be said that prices of steel products are up a dollar a ton as a result of the January bookings.

Late in January billets and sheet bars advanced a dollar a ton, to $21 for billets at $22 for sheet bars, first quarter, with an extra dollar for second quarter. While billets had not openly declined below $20, there were sales of sheet bars at that same figure, and probably in a few instances for second quarter delivery. Bessemer bars did not openly decline below $21, but limited tonnages of Bessemer bars were

U. S. STEEL CORPORATION'S OPERATIONS.

EARNINGS AND UNFILLED ORDERS.

Earnings by Quarters.

Net earnings by quarters since 1908:

Quarter.	1913.	1912.	1911.
1st	$34,426,801	$17,826,973	$23,519,203
2nd	41,210,813	25,102,265	28,108,520
3rd	38,450,400	30,063,512	29,522,725
4th	23,036,349	35,185,557	23,155,018
Year	137,133,363	108,178,307	104,305,466

	1910.	1909.	1908.
1st	$37,616,876	$22,921,268	$18,229,005
2nd	40,170,960	29,340,491	20,265,756
3rd	37,365,187	38,246,907	27,106,274
4th	25,901,730	40,982,746	26,246,675
Year	141,054,753	131,491,412	91,847,710

Unfilled Orders.

(At end of the Quarter):

	First.	Second.	Third	Fourth.
1903..	5,410,719	4,666,578	3,278,742	3,215,123
1904..	4,136,961	3,192,277	3,027,436	4,696,203
1905..	5,579,560	4,829,655	5,865,377	7,605,086
1906..	7,018,712	6,809,584	7,936,884	8,489,718
1907..	8,043,858	7,603,878	6,425,008	4,642,553
1908..	3,765,343	3,313,876	3,421,977	3,603,527
1909..	3,542,590	4,057,939	4,796,833	5,927,031
1910..	5,402,514	4,257,794	3,158,166	2,674,757
1911..	3,447,301	3,361,058	3,611,317	5,084,761
1912..	5,304,841	5,807,346	6,551,507	7,932,164
1913..	7,468,956	5,807,317	5,003,785	4,282,108

BOOKINGS AND SHIPMENTS.

In this table, first two columns, percentages of bookings and shipments to total capacity, are our estimates, while last column is derived from official reports of "unfilled tonnage" while third percentage column is directly computed from this tonnage column.

1912—	Shipments. %	Bookings. %	Difference. %	Difference. Tons.
January	70	95	+25	+294,960
February ..	78	85	+ 7	+ 74,479
March	85	68	—17	—149,359
April	92	124	+32	+360,044
May	93	101	+ 8	+ 86,098
June	94	99	+ 5	+ 56,363
July	82	95	+13	+149,733
August	92	110	+18	+206,296
September ..	98	135	+37	+388,132
October	98	187	+89	+1,042,874
November ..	96	120	+24	+258,512
December ..	97	104	+ 7	+ 79,281
January 1913	98	89	- 9	—104,796
February ...	98	82	—16	—170,654
March	93	77	—16	—187,758
April	93	51	—42	—490,194
May	95	41	—54	—654,440
June	93	47	—46	—517,105
July	90	55	—35	—407,961
August	90	75	—15	—175,888
September ..	92	74	—18	—219,683
October ...	87	74	—40	—490,018
November ..	70	59	—11	—117,420
December ..	50	40	—10	—114,239

IRON AND STEEL.

taken by some mills, in connection with larger tonnages of open hearth, all at $20. Consumers are fairly well covered to April 1st at the old prices.

By the end of January the steel mills had reached an average operation of 65% of capacity, but on account of light operations early in the month January shipments probably did not average much over 55% of capacity, which compares favorably with the 45% shipments we estimate for December.

The outlook is for somewhat lighter bookings in February than in January, as to actual specifications, but perhaps more liberal contracting for later deliveries, now that the mills have a slightly higher basis on which to work. Prices are not likely to advance further in February, or until considerably more tonnage has been covered, but in March or April advances of $1 to $2 a ton may occur. Mill operations are likely to increase at a steady pace, shipments being perhaps 65 to 70% of capacity in February, 70 to 75% in March and 80 to 85% in April, and perhaps 100% in June. We use specific figures merely for the purpose of bringing out plainly the concept of the steel industry gradually working up to full capacity, in as short a space of time as can reasonably be expected, in contrast with the views of the mercurial who foresees nothing but full operation the moment there is a slight improvement in buying. Our view is really a very hopeful one, for we expect improvement at this rate and believe the balance of probabilities is that the iron and steel industry as a whole will make a new record for production this year, by a very comfortable margin over the excellent tonnage record made in 1913.

WESTERN IRON AND STEEL.

The Chicago market has shown decided improvement in the month of January, both in tone and activity. The steel mills have more business and large deals in pig iron have been popping in all parts of the country. The most conservative men in the trade express the opinion that the improvement exceeds their expectations, and they now believe that in the course of six months the steel mills will get back to a full active basis.

The demand from other than railroad sources has been better than railroad buying. In fact, if the railroads were at all active in the market, the Chicago district would be comfortably well off in the matter of tonnage. The railroads have suffered from a long period of high interest rates, and their own extravagance in paying advances in wages to men who already were receiving more than double the average income of American citizens. Money is now getting cheaper, especially for short commercial loans, and in the near future money for investment in bonds should become cheaper and more abundant. Meantime, the railroads are chasing a rainbow in their efforts [illegible] which would not relieve their difficulties if they got it.

The Pig Iron Market.

Pig iron has been quite active. The large buyers have been closing in all parts of the country for round tonnages, and the middle class foundries seem to be following closely in the lead of the large melters. The market has been too heavy to show any resiliency. Superficially, it seems to have weakened while the buying was in progress, but this may have been due to the policy of the furnaces in restricting contracts to near deliveries. The very low prices reported during the month from furnaces around the lakes were for sales for first quarter, but only a little improvement is shown on contracts running through the first half. The trouble is that the whole lake region is suffering from over-production of foundry grades of iron. The furnace operators in building new stacks have been influenced by the great expansion in the consumption of steel, while the uses for foundry products have been growing at a slower pace. As a result of this pressure on the market, Chicago prices have reached the lowest level in years past, and southern iron is almost ex-

IRON AND STEEL.

cluded from Chicago.

At present prices, inquiries are general and a large tonnage is being sold. Southern furnaces are getting but a small share of the business in this territory, excepting at points distant from the lakes where freight tends to equalize prices and give the southern seller an opportunity to compete on even terms.

There is quite a flurry in ferromanganese at the close of the month, and scattering sales are being made.

Rail Orders Short.

While several respectable rail orders have been announced, the tonnage booked by the mills is relatively small. Track supplies are doing better, but even in this line orders are not up to the average requirements of the roads for spring work. Developments are expected in rail negotiations in the next 30 days, as good inquiries are pending from western roads. The capacity of the rail mills of the country is now considerably in excess of the average yearly consumption, and the railroads are able to take advantage of this situation by delaying their orders.

Plates and Structural.

Prospects are very good in heavy rolled products. The Union Pacific car order is looked upon as a good beginning for the market. The railroads need cars for the future. While traffic is relatively light this winter, on account of short crops last summer, and general business dulness, many of the large roads have no surplus of equipment, and they will have to provide more cars for the summer and fall movement.

Chicago is overbuilt and not much is expected in the way of local structural contracts, but other western cities have building projects under way which will call for a large tonnage of steel. A full railroad demand added to present orders would soon fill up the mills.

Slack Demand for Bars.

Chicago has been a storm center in the bar market in the past two months. The agricultural implement people carried over large stocks of finished goods last fall, on account of the shortage in corn and forage crops which curtailed their sales, and they are not pushing their manufacturing operations this winter as actively as in the past two or three years. This has restricted their bar specifications. In other directions the bar business is picking up, especially in the demand for concrete work, which has become a very large factor in the western bar trade.

The sheet business is improving steadily, and bar iron shows indications of better prices, although not much can be expected for this particular line until the railroads resume active buying.

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PRICE CHANGES.

Price changes in merchant bars, structural shapes, plates, wire nails merchant pipe, sheets and tin plates are given below, with dates, from the beginning of 1912. These are the commodities used in compiling our **composite finished steel**. In some cases the dates named are those upon which prominent producers announced price changes, but more frequently dates are merely those upon which our quotations were changed.

1912—			
Jan. 23	Wire nails	1.55	to 1.60
Feb. 7	Tin plate	3.40	to 3.30
" 7	Sheets	1.90	to 1.85
" 8	Bars	1.15	to 1.10
" 8	Plates	1.15	to 1.10
" 8	Shapes	1.15	to 1.10
" 26	Sheets	1.85	to 1.80
Mar. 20	Shapes	1.10	to 1.12½
" 21	Shapes	1.12½	to 1.15
" 21	Plates	1.10	to 1.12½
April 1	Plates	1.12½	to 1.15
" 9	Sheets	1.80	to 1.85
" 10	Bars	1.10	to 1.15
" 10	Plates	1.15	to 1.20
" 10	Shapes	1.15	to 1.20
" 22	Sheets	1.85	to 1.90
" 24	Bars	1.15	to 1.20
" 24	Plates	1.20	to 1.25
" 24	Shapes	1.20	to 1.25
May 7	Tin plates	3.30	to 3.40
June 1	Pipe	81%	to 80%
" 26	Bars	1.20	to 1.25
" 26	Shapes	1.25	to 1.30
" 26	Plates	1.25	to 1.30
July 1	Sheets	1.90	to 1.95
" 9	Tin plates	3.40	to 3.50
" 22	Wire nails	1.60	to 1.65
" 24	Sheets	1.95	to 2.00
" 25	Pipe	80%	to 79%
Aug. 1	Bars	1.25	to 1.30
" 1	Plates	1.30	to 1.35
" 1	Shapes	1.30	to 1.35
" 13	Sheets	2.00	to 2.05
" 20	Plates	1.35	to 1.40
" 20	Shapes	1.35	to 1.40
" 26	Wire nails	1.65	to 1.70
Sept. 4	Tin plate	3.50	to 3.60
" 4	Sheets	2.05	to 2.10
" 10	Sheets	2.05	to 2.10
" 11	Sheets	2.10	to 2.15
" 26	Bars	1.30	to 1.35
Oct. 8	Plates	1.40	to 1.45
" 8	Shapes	1.40	to 1.50
" 9	Bars	1.35	to 1.40
" 10	Plates	1.45	to 1.50
" 10	Shapes	1.45	to 1.50
" 17	Sheets	2.15	to 2.25
Dec. 10	Wire nails	1.70	to 1.75

1913—			
Jan. 2	Pipe	79%	to 80%
" 14	Sheets	2.25	to 2.35
Feb. 1	Plates	1.50	to 1.45
" 1	Shapes	1.50	to 1.45
Mar. 24	Wire nails	1.75	to 1.80
April 14	Pipe	80%	to 79½%
May 27	Pipe	79½%	to 79%
June 2	Wire nails	1.80	to 1.75
" 11	Sheets	2.35	to 2.30
" 18	Sheets	2.30	to 2.25
July 1	Wire nails	1.75	to 1.70
Aug. 9	Pipe (⅜-3-in.)	79%	to 80%
" 12	Wire nails	1.70	to 1.65
" 21	Sheets	2.25	to 2.15
" 27	Plates	1.45	to 140
Sept. 1	Shapes	1.45	to 1.40
" 22	Sheets	2.15	to 2.05
Oct. 2	Tin plates	3.60	to 3.50
" 3	Wire nails	1.65	to 1.60
" 16	Plates	1.40	to 1.35
" 21	Plates	1.35	to 1.30
" 23	Shapes	1.40	to 1.35
" 24	Sheets	2.05	to 2.00
" 27	Pipe	2½%	extra discount
" 28	Bars	1.40	to 1.35
Nov. 3	Tin plate	3.50	to 3.40
" 7	Bars	1.35	to 1.30
" 17	Sheets	2.00	to 1.95
" 25	Bars	1.30	to 1.25
" 25	Plates	1.30	to 1.25
" 25	Shapes	1.35	to 1.30
" 28	Wire nails	1.60	to 1.55
Dec. 2	Sheets	1.95	to 1.90
" 3	Shapes	1.30	to 1.25
" 4	Plates	1.25	to 1.20
" 11	Bars	1.25	to 1.20
" 22	Shapes	1.25	to 1.20
" 31	Sheets	1.90	to 1.80
1914—			
Jan. 6	Wire nails	1.55	to 1.50
" 7	Sheets	1.80	to 1.85
" 13	Wire nails	1.50	to 1.55
" 23	Sheets	1.85	to 1.90
" 30	Sheets	1.90	to 1.95

COMPOSITE STEEL.

Computation for February 2, 1914

Pounds.	Group.	Price.	Extension.
2¼	Bars	1.20	3.000
1¼	Plates	1.20	1.800
1½	Shapes	1.20	1.800
1½	Pipe (6x.3)	2.00	3.000
1½	Wire nails	1.55	2.325
1	Sheets (28 bl.)	1.95	1.950
½	Tin plates	3.40	1.700
10 pounds			15.575
One pound			**1.5575**

(Averaged from daily quotations.)

	1910.	1911.	1912.	1913.	1914.
Jan...	1.8625	1.7415	1.5123	1.7737	1.5394
Feb..	1.8475	1.7520	1.4878	1.7625	.....
Mar..	1.8475	1.7590	1.4790	1.7646	.....
April.	1.8400	1.7600	1.5206	1.7743	.....
May..	1.8325	1.7510	1.5590	1.7786	.....
June .	1.7955	1.6817	1.5794	1.7719	.....
July..	1.7755	1.6701	1.6188	1.7600	.....
Aug..	1.7550	1.6394	1.6784	1.7400	.....
Sept.	1.7470	1.6090	1.7086	1.7093	.....
Oct...	1.7350	1.5461	1.7588	1.6779	.....
Nov..	1.7305	1.4930	1.7750	1.6203	.....
Dec..	1.7380	1.4812	1.7789	1.5558	.....
Year.	1.7922	1.6570	1.6214	1.7241	.....

SCRAP IRON & STEEL PRICES.

	Melting Steel. Pitts.	Bundled Sheet, Pitts.	No. 1 R.R. Wrought, Pitts.	No. 1 Cast, Pitts.	No. 1 Steel, Phila.	Heavy Melt'g. Ch'go.
1912—						
May	13.25	11.40	13.25	12.40	13.50	12.70
June	13.45	12.00	13.70	13.00	13.50	12.25
July	13.57	12.35	14.10	13.37	13.60	12.15
Aug.	13.60	12.25	14.15	13.35	14.25	12.10
Sep.	14.10	12.25	14.50	13.40	15.25	12.50
Oct.	15.75	12.95	15.80	14.05	15.75	14.00
Nov.	15.35	13.12	16.00	15.00	15.30	13.80
Dec.	15.10	13.15	15.75	15.10	14.75	13.40
Year	13.76	11.92	14.16	13.28	13.82	12.30
1913—						
Jan.	15.00	13.10	15.35	14.65	14.50	12.75
Feb.	14.35	12.00	15.35	14.65	13.25	12.65
Mar.	14.35	11.60	15.35	14.60	13.60	12.50
Apr.	14.25	10.50	15.50	14.50	13.75	12.60
May	13.50	10.00	15.00	14.25	12.25	11.50
June	13.20	9.25	14.25	13.50	11.50	10.75
July	12.50	8.75	13.35	12.30	11.15	10.60
Aug.	12.40	8.25	13.25	12.50	11.85	10.75
Sep.	12.60	8.00	13.00	12.50	12.25	10.60
Oct.	12.25	7.40	13.00	12.40	11.20	10.35
Nov.	11.40	6.75	11.85	12.00	10.30	10.25
Dec.	11.00	6.40	11.65	11.60	9.75	9.25
Year	13.07	9.33	13.91	13.29	12.12	11.21
1914—						
Jan.	11.25	7.00	12.20	12.00	10.50	9.25

COMPOSITE PIG IRON.

Computation for February 2, 1914

One ton Bessemer, valley	$14.00
Two tons basic, valley (12.50)	25.00
One ton No. 2 foundry, valley	13.00
One ton No. 2 foundry, Philadelphia	14.75
One ton No. 2X foundry, Buffalo	12.75
One ton No. 2 foundry, Cleveland	13.25
One ton No. 2 foundry, Chicago	14.00
Two tons No. 2 Southern foundry Cincinnati (13.75)	27.50
Total, ten tons	$134.25
One ton	**$13.425**

Averaged from daily quotations:

	1910.	1911.	1912.	1913.	1914.
Jan...	17.598	14.375	13.420	17.391	13.492
Feb..	17.215	14.340	13.427	17.140	.. .
Mar..	16.702	14.425	13.581	16.775	. . .
April	16.315	14.375	13.779	16.363	.
May.	15.750	14.242	13.917	15.682	. ..
June .	15.320	14.032	14.005	14.968	.
July ,	15.131	13.926	14.288	14.578	.....
Aug..	14.727	13.874	14.669	14.565	. .
Sep...	14.612	13.819	15.386	14.692	.....
Oct...	14.435	13.692	16.706	14.737	.....
Nov..	14.415	13.532	17.226	14.282	..
Dec .	14.408	13.430	17.475	13.838	..
Year.	15.552	14.005	14.823	15.418	. .

UNFINISHED STEEL AND IRON BARS.

(Averaged from daily quotations.)

	Billets, Pitts.	Sheet bars, Pitts.	Rods, Pitts.	— Iron bars, deliv.— Phila.	Pitts.	Chi'go.
Sep.	23.75	24.25*	26.00	1.40	1.46	1.44
Oct.	25.75*	26.25*	28.37	1.55	1.55	1.50
Nov.	26.75*	27.25*	29.90	1.67	1.62	1.55
Dec.	27.00*	27.50	30.00	1.68	1.65	1.55
Year	22.37	23.01	26.15	1.38	1.38	1.32
1913—		* Premiums for open-hearth.				
Jan.	28.40	29.40	30.00	1.68	1.65	1.60
Feb.	29.00	30.00	30.00	1.67	1.65	1.59
Mar.	29.00	30.00	30.00	1.65	1.65	1.58
Apr.	27.50	28.00	30.00	1.68	1.65	1.58
May	27.00	27.50	30.00	1.68	1.65	1.55
June	26.50	27.50	29.00	1.61	1.65	1.50
July	26.50	27.50	28.50	1.55	1.65	1.50
Aug.	25.75	26.50*	28.00	1.42	1.62	1.44
Sep.	24.00*	25.00*	27.37	1.33	1.59	1.37
Oct.	22.50	23.25	26.50	1.32	1.54	1.27
Nov.	20.50	21.50	26.00	1.30	1.45	1.15
Dec.	20.00	21.00	25.25	1.25	1.37	1.12
Year	25.55	26.43	28.39	1.51	1.59	1.45
1914—						
Jan.	20.00	20.25*	25.75	1.24	1.35	1.11

* Premiums for Bessemer.

COPPER.

COPPER IN JANUARY.

Just after we went to press last month the copper producers issued that extraordinary statement covering their December operations, and it seemed almost inevitable that the copper market was in for another set back. There was something of a set back, because electrolytic declined from 14⅞ to 14⅛, but that was only a return to the prices that had existed shortly before Christmas, and it was not what one might have expected from an increase in surplus stocks in one month of more than 43,000,000 lbs. It was a very moderate reaction when it is considered that American consumers took only one-half as much copper in December as in any other month in five years. However, the fact is that copper was supported by influences outside of itself, and the timely change in business sentiment, the advance in Wall Street, the return of easy money, the improvement in iron and steel and reviving confidence and the bullish fever which pervaded Europe, all came to the assistance of the metal, and the market was carried along on the tide of optimism which has swept the two continents.

Europe as usual was the first to start the buying, taking over large quantities at 14⅛, and later on the American buyers came in, which has enabled the producers to advance the price to 14⅞ again. Buyers now seem to have provided pretty well for their requirements through March, and the market although firm has not the activity that it had a fortnight ago.

The producers are expected to be able to make a fairly good showing in their statement for January, on account of the large buying, and the general estimates call for an increase in stocks of only some 10,000,000 to 15,000,000 lbs. based on export deliveries of 70,000,000 to 75,000,000 lbs; domestic deliveries of 45,000,000 to 55,000,000 lbs. and a production of about 135,000,000 lbs. Some interests however, are predicting an increase of 20 to 25,000,000 lbs. in producers stocks.

The reports received from manufacturing centers show, that while there has been some increase in factory operations there still remains a considerable backwardation to be absorbed, and a fair estimate of the country's consumption of copper at present could not be placed at over 70% of normal, or about along the same lines that the iron and steel industry is running. The fact that the leading manufacturer of copper and brass products lately reduced prices ¼c, on a rising copper market, to meet outside competition, shows that orders for manufactured goods are not sufficient to go round. However, we are entering on the best months of the year especially for the wire trade, and an expansion in business can be reasonably expected although it doesn't necessarily mean high copper prices or large profits

COPPER PRICES IN JANUARY.

Dec	— NEW YORK — Lake Cts.	Electro Cts.	Casting Cts.	— LONDON — Standard (Prompt) £ s d	Best Selected. £ s d
1				..	.....
2	15.37½	14.75	14.45	64 2 6	70 5 0
3				..	.....
4				..	.....
5	15.00	14.50	14.37½	63 12 6	69 0 0
6	15.00	14.50	14.37½	64 3 9	70 0 0
7	15.00	14.50	14.37½	64 0 0	69 10 0
8	14.50	14.25	14.12½	63 12 6	68 15 0
9	14.50	14.25	14.12½	62 17 6	68 5 0
10					..
11					..
12	14.50	14.25	14.12½	62 17 6	67 15 0
13.	14.50	14.25	14.06¼	62 17 6	67 15 0
14.	14.50	14.18¾	14.06¼	62 11 3	67 10 0
15.	14.50	14.20	14.06¼	63 12 6	68 10 0
16.	14.50	14.30	14.15	64 1 3	69 10 0
17.					..
18				..	.....
19.	14.56	14.35	14.20	64 8 9	69 10 0
20.	14.56¼	14.35	14.20	64 12 6	69 15 0
21.	14.62½	14.40	14.25	64 15 0	70 0 0
22.	14.75	14.45	14.30	65 1 3	70 5 0
23.	14.87½	14.55	14.35	65 6 3	70 10 0
24.				..	.....
25.					..
26.	14.87½	14.55	14.35	65 2 6	70 0 0
27.	14.87½	14.55	14.35	65 12 6	70 10 0
28.	15.00	14.70	14.50	65 12 6	70 10 0
29.	15.00	14.70	14.50	65 15 0	70 15 0
30.	15.00	14.70	14.50	65 15 0	70 15 0
31				.....	.....
High	15.50	14.875	14.55	65 17 6	70 15 0
Low	14.50	14.125	14.00	62 10 0	67 15 0
Av'ge	14.765	14.449	14.275	64 6 2	69 9 9

COPPER.

for the manufacturers.

The record of price changes and usual comparison of statistics are given on another page.

WATERBURY AVERAGES.

	Copper			Spelter		
	1912.	1913.	1911	1912.	1913	1911
Jan	14.50	15.00	14.55	6.78	7.56	5.54
Feb	14.50	15.50		6.85	6.81	
Mar.	15.00	15.12½		7.13	6.56	
Apr.	16.00	15.75		7.67	6.08	
May	16.37½	15.87½		7.81	5.75	
June	17.50	15.37½		7.25	5.50	
July	17.75	14.75		7.16	5.61	
Aug.	17.75	15.62½		7.31	5.99	
Sep.	17.87½	16.87½		7.72	6.13	
Oct.	17.75	16.87½		7.83	5.71	
Nov.	17.55	16.25		7.74	5.66	
Dec.	17.75	15.00		7.65	5.44	
Year	16.71	15.83		7.33	6.06	

COPPER EXPORTS.

The following table shows the exports of copper for the past both years, in tons.

	1914	1913.	1912.	1911.
Jan	15,556	25,026	31,229	29,357
Feb		26,792	31,894	19,492
Mar		42,428	27,074	23,600
April		33,274	22,591	27,466
May		38,601	32,984	27,670
June		25,815	26,669	30,489
July		29,596	26,761	36,659
Aug		34,722	29,526	29,018
Sept.		31,156	25,572	26,170
Oct.		29,239	25,020	22,555
Nov		29,158	19,171	26,600
Dec.		30,503	29,474	37,725
Total		382,110	327,965	336,801

VISIBLE SUPPLY OF COPPER.

Based on the returns of the Copper Producers' Association and H. R. Merton & Co.

	Stocks in American Producers' hands	Monthly Fluctuation.	European Visible Supply.	Monthly Fluctuation	Combined Visible Supply	Monthly Fluctuation.
1912—						
Jan. 31.	66,280,643	23,174,052	153,820,800	— 4,509,120	220,101,443	—27,683,172
Feb. 29.	62,939,988	3,340,655	141,135,680	—12,685,120	204,075,668	—16,025,775
Mar. 31.	62,367,557	— 572,431	136,808,000	— 4,327,680	199,175,557	— 4,900,111
Apr. 30.	65,066,029	+ 2,698,472	134,155,840	— 2,652,160	199,221,869	+ 46,312
May 31.	49,615,643	—15,450,386	117,797,120	—16,358,720	167,412,763	—31,809,106
June 30.	44,335,004	— 5,280,639	107,817,920	— 9,979,200	152,152,924	—15,259,839
July 31.	50,280,421	+ 5,945,417	113,290,240	+ 5,472,320	163,570,661	+11,417,737
Aug. 31.	46,701,374	— 3,579,047	113,783,040	+ 492,800	160,484,414	— 3,086,247
Sep. 30.	63,065,587	+16,364,213	107,403,520	— 6,379,520	170,469,107	+ 9,984,693
Oct. 31.	76,744,964	+13,679,377	103,801,600	— 3,601,920	180,546,564	+10,077,457
Nov. 30.	86,164,059	+ 9,419,095	96,938,240	— 6,863,360	183,102,299	+ 2,555,735
Dec. 31.	105,312,582	+19,148,523	96,857,600	— 80,640	202,170,182	+19,067,883
Year 1912		+15,857,887		—61,472,320		—45,614,433
1913						
Jan. 31.	123,198,332	+17,885,750	96,546,240	— 311,360	219,744,572	+17,574,390
Feb. 28.	122,302,198	— 896,134	100,067,520	+ 3,521,280	222,369,718	+ 2,625,146
Mar. 31	104,269,270	—18,032,928	*100,965,760	+ 898,240	205,235,030	—17,134,688
Apr. 30.	75,549,108	—28,720,162	98,374,720	— 2,591,040	173,923,828	—31,311,202
May 31.	67,474,225	— 8,074,883	90,018,880	— 8,355,840	157,493,105	—16,430,723
June 30.	52,904,606	—14,569,619	85,559,040	— 4,459,850	138,463,646	—19,029,450
July 31.	53,594,945	+ 690,339	79,804,480	— 5,754,560	133,399,425	— 5,064,221
Aug. 31.	38,314,037	—15,280,908	76,260,800	— 3,543,680	114,574,837	—18,824,588
Sep. 30.	29,793,094	— 8 520,943	62,314,560	—13,946,240	92,107,654	—22,467,183
Oct. 31.	32,566,382	+ 2,773,288	57,854,480	— 4,460,080	90,420,862	— 1,686,792
Nov. 30.	47,929,429	+15,363,047	59,935,680	+ 2,081,200	107,965,109	+17,444,247
Dec. 31.	91,438,867	+43,509,438	66,124,800	+ 6,189,120	157,563,667	+49,698,558
Year 1913		—13,873,715		—30,732,806		—44,606,515

* Bremen stocks included for the first time

TIN.

TIN IN JANUARY.

At the time of our last writing tin was selling at under 37.00c but since then there has been an advance of over 4c per lb. to above 41c. In our last report we said "as the Syndicate still exists and is wisely selling as well as buying from time to time, meanwhile keeping their large interests in the market, they could easily on any encouraging feature cause a heavy advance in price, and consumers after their experience of the past three years could easily and justly be frightened." This was not said in the way of a prediction, but rather as a warning of what was liable to happen under certain conditions, and as it turned out the warning proved to be a timely one. There is no doubt that the scenes were laid months ago, and in January the Syndicate were satisfied that the time had come to raise the curtain.

The great change which has taken place in business sentiment and the improvement in business, especially in tin consuming industries, brought the buyers into the market with a rush, and January saw the largest business that has been done in a year at constantly advancing prices. The buyers were clearly frightened by the steady advance, and the main reason there has been no reaction is due to the fact that the demand has been continuous.

The Syndicate, whose interest in the market is estimated at around 8,000 tons have taken full advantage of the opportunity presented them, and meeting with only a feeble resistance on the part of the bear party, they have been able to turn a weak and declining market into an active and advancing one. The report is that the bear party has lost some of its strongest members, and it is certain that a large number of small operators, both in London and America, have also transferred their affections to the bull side, which means that the higher prices are being encouraged from quarters where hitherto there was stiff opposition.

The advance has been rather more rapid than the change in the situation would seem to warrant or the statistics reveal, but as tin is a mercurial article, and as it moves in an orbit of its own, it is impossible to determine price fluctuations by any fixed rule.

American consumers allowed their stocks to run down very low, and the unexpected improvement in business has practically forced them to play into the hands of the Syndicate, but as prices are still 10c per lb. below the high level of 1912 and 1913, and as conditions are not what they were then, we do not believe that they will be pinched very badly.

The outlook for the next four or five weeks is for an erratic market with the general tendency upwards.

TIN PRICES IN JANUARY.

	New York.	London — prompts.	London — C. I. F.
	Cts.	£ s d	£ s d
1	....	.... ..	.....
2	36.80	168 0 0	171 5 0
3	....	.....	.....
4	....	.....	.....
5	36.55	166 15 0	169 2 6
6	36.87½	168 10 0	168 15 0
7	36.62½	167 10 0	171 0 0
8	36.45	166 15 0	169 5 0
9	36.87½	168 5 0	168 15 0
10	....	.....	.....
11	....	.... ..	.....
12	36.95	168 0 0	170 5 0
13	36.87½	167 15 0	170 5 0
14	36.75	167 5 0	170 10 0
15	36.90	168 0 0	169 10 0
16	37.12	168 15 0	170 7 6
17	....	....	.....
18	....	....	.....
19	37.45	170 10 0	171 0 0
20	37.75	172 5 0	172 2 6
21	38.00	173 10 0	174 0 0
22	38.80	177 0 0	175 10 0
23	38.30	174 5 0	178 0 0
24	....	....	....
25	....	.....	.....
26	39.00	176 15 0	176 0 0
27	39.25	178 5 0	179 10 0
28	39.50	179 5 0	179 15 0
29	39.75	180 15 0	181 15 0
30	40.00	182 5 0	182 10 0
31	....	.....	.....
High ..	40.00	182 5 0	182 10 0
Low ...	36.45	165 10 0	168 15 0
Average	37.742	171 18 4	173 5 10

SPELTER.

SPELTER IN JANUARY.

The spelter market was inclined to be shaky at the beginning of the year after the publication of the annual statistics, which showed that the production had been largely in excess of consumption, or what is more correct, had been much greater than the deliveries to consumers, and that smelters stocks had reached the highest total ever seen. But as no pressure was brought to sell price held steady at 5.10 East St. Louis until the buying set in, and has since advanced to 5.35c. The statistics had been discounted weeks ahead, and the Government's figures merely confirmed a condition that was known to exist, as seen by the decline to 4.95c in December. The market in January therefore was not influenced by what had happened, but by what was likely to happen during the first quarter of 1914, and the improvement in business sentiment together with an improvement in actual business has been sufficient to bring about a fair recovery in the price of this metal. The buying did not reach large proportions until the second half of the month, but during the last two weeks a lot of orders were placed by the galvanizing interests, buyers contracting as far ahead as sellers would go. The brass interests were also free buyers but the increased demand came principally from the galvanizers.

The galvanized sheet trade was in poor shape in November and December, but there was a marked change for the better in January, and with tinplates, the sheet trade is now probably making the best record in the iron and steel industry.

The production of spelter does not appear to have undergone any further curtailment in January, and the rate of output is about 70 to 75% of capacity which is a conservative rate under present conditions. The remaining capacity can be brought into operation when required, and the fact that the output can be enlarged should check any undue advance in the price of spelter. Another check against a rapid rise is the fact that European spelter can come in under a 15% duty which makes the present import cost 5.60c or only a fraction over our market.

The market is regaining some of its lost strength, and if allowed to pursue a steady course will probably undergo a continued moderate improvement.

SHEET ZINC PRICE CHANGES.

The changes in the price of sheet zinc since March 21, 1912 are shown in the following table together with the price of spelter on the same dates.

	Sheet Zinc	Spelter, St. Louis.
1912—		
March 21	8.65	6.67½
July 8	8.75	7.02½
September 12	8.90	7.37½
September 25	9.00	7.42½
1913—		
February 3	8.75	6.60
February 17	8.50	6.20
February 26	8.25	6.07½
March 29	8.00	5.80
April 22	7.75	5.45
May 20	7.50	5.30
June 7	7.25	5.10
June 26	7.00	5.05
July 23	7.25	5.20
July 30	7.50	5.45
August 15	7.75	5.65
August 29	8.00	5.80
October 6	7.75	5.37½
October 17	7.50	5.17½
December 3	7.25	5.00
1914—		
January 1	7.50	5.12½
January 22	7.25	5.12½

SPELTER (Monthly Averages.)

	—New York—			—St. Louis—		
	1912.	1913.	1914.	1912.	1913.	1914.
Jan.	6.55	7.23	5.33	6.39½	7.04	5.14
Feb.	6.70	6.49	....	6.53	6.25	.
Mar.	6.93	6.29	..	6.74	6.08	.
Apr.	6.87	5.79	..	6.66	5.59	
May	6.89	5.51	.	6.71	5.31	.
June	7.05	5.23½	..	6.85½	5.05	
July	7.23	5.41	.	7.04	5.23	..
Aug.	7.13	5.80	..	6.94	5.64	.
Sep.	7.55	5.83	...	7.37	5.65	.
Oct.	7.61	5.47	....	7.39	5.27	
Nov.	7.50	5.34		7.32	5.15	
Dec.	7.36	5.22	.	7.19	5.03	
Year	7.11	5.80	..	6.93	5.61	...

LEAD.

LEAD IN JANUARY.

The trust made two advances in the price of lead during the last week in December which was followed by a reduction of $1 a ton on January 9th and afterwards on February 2nd by an advance of $1 a ton. As this makes three successive changes of only $1 a ton, it is wondered whether the trust have adopted this as a standard unit for price fluctuations; hitherto the changes were usually either $2,. $3 or $5 per ton.

The market was quite active in January and some buyers bought heavily on the belief that the metal was so cheap that any change would naturally be upwards. Independent sellers have generally been quoting higher than the trust price and all sellers have shown a reluctance to offer future deliveries.

As previously stated, we believe the refiners were carrying large stocks of lead at the beginning of the year, and the reason why the price of lead did not follow the advances in other metals was probably because the big interests wished to see stocks reduced before stimulating the production by establishing higher prices.

While our market has remained practically stationary, the European market has advanced £2 per ton to £20, equal to 4.25c per lb., so lead is as high abroad as it is here, which is a very unusual occurrence. It must be mentioned however, that the published prices of lead in London apply only for prompt deliveries, and as futures are selling at from £1 to £2 under prompt, it is not possible to profitably export domestic lead to Europe.

The Trust price of lead was reduced on January 9th one dollar a ton to a basis of 4.10 delivered New York in 50 ton lots. Price changes since Jan. 1, 1913 are shown in the following table.

1913—		
January 1, opening price		4.35
April 22	Advanced	15c to 4.50
May 5	Reduced	15c to 4.35
July 29	Advanced	15c to 4.50
Aug. 15	"	25c to 4.75
Oct. 1	Reduced	15c to 4.60
Oct. 8	"	10c to 4.50
Oct. 16	"	15c to 4.35
Nov. 26	"	10c to 4.25
Dec. 2	"	15c to 4.10
Dec. 9	"	10c to 4.00
Dec. 24	Advanced	10c to 4.10
Dec 29	"	5c to 4.15
1914—		
Jan. 9	Reduced	5c to 4.10
Feb 2	Advanced	5c to 4.15

SPELTER AND LEAD PRICES IN JANUARY.

	SPELTER			LEAD		
Day	New York	St. Louis	London	New York.	St. Louis.	London
1.						
2.	5.35	5.12½	21 10 0	4.17½	4.07½	18 5 0
3.						
4						
5.	5.35	5.12½	21 10 0	4.17½	4.07½	18 10 0
6.	5.30	5.10	21 7 6	4.17½	4.02½	18 10 0
7.	5.30	5.10	21 11 3	4.17½	4.02½	19 0 0
8.	5.30	5.10	21 11 3	4.17½	4.02½	19 0 0
9.	5.30	5.10	21 10 0	4.12½	3.97½	19 5 0
10.						
11.						
12.	5.30	5.10	21 10 0	4.10	3.95	19 10 0
13.	5.30	5.10	21 10 0	4.10	3.95	19 7 6
14.	5.30	5.11½	21 11 3	4.10	3.95	19 10 0
15.	5.30	5.11½	21 11 3	4.10	3.95	19 12 6
16.	5.30	5.11½	21 11 3	4.10	3.95	20 5 0
17.						
18.						
19.	5.30	5.11½	21 10 0	4.10	3.95	20 7 6
20.	5.30	5.11½	21 10 0	4.10	3.95	20 7 6
21.	5.30	5.11½	21 12 6	4.10	3.95	20 7 6
22.	5.32½	5.12½	21 12 6	4.10	3.97½	20 7 6
23.	5.32½	5.13¾	21 12 6	4.10	3.97½	20 5 0
24.						
25.						
26.	5.40	5.22½	21 12 6	4.12½	4.00	20 2 6
27.	5.40	5.22½	21 10 0	4.15	4.03¾	20 2 6
28.	5.40	5.22½	21 10 0	4.15	4.03¾	20 0 0
29.	5.42½	5.25	21 10 0	4.15	4.03¾	20 0 0
30.	5.42½	5.25	21 10 0	4.15	4.03¾	20 0 0
31.						
High	5.45	5.25	21 12 6	4.20	4.10	20 7 6
Low	5.25	5.10	21 7 6	4.10	3.95	18 5 0
Av.	5.333	5.141	21 10 7	4.13	3.995	19 13 1

New York lead prices outside market.

ALUMINUM—ANTIMONY

ALUMINUM IN JANUARY.

The aluminum market in January was a disappointing one from an importer's standpoint, as very few orders were placed for foreign aluminum. There is no telling how much business the domestic producer did but it is understood that they captured all the large orders by quoting under the import cost. There seems to be no fixed price for domestic aluminum, but each transaction is treated as a new deal and prices are quoted according to the exigencies of the case. It is quite common to hear of a difference of one cent per pound between the quotations on domestic material.

Early in January foreign aluminum was offered as low as 16c c.i.f. New York in bond, but the European market afterwards became firmer and prices were raised to 16½c to 16¾c equal to 18½c to 18¾c duty paid.

The average price of aluminum for prompt delivery was 18¾c in January as compared with 18.85c in December and 26.31c in January 1913.

COMPOSITE METAL PRICES.

Computation for February 2, 1911:

Pounds.	Metal.	Price.	Extension.
4	Lead (St. Louis)	4.06½	16.250
2½	Spelter (St. L.)	5.27½	13.187
3	Copper (Electro)	14.80	44.400
½	Tin (New York)	40.62½	20.312
10 pounds			94.149
	One pound		**9.4149**

Monthly averages.

	1910.	1911.	1912.	1913.	1914.
Jan.	**9.084**	8.908	9.778	10.987	9.105
Feb.	8.881	8.915	9.677	10.269	.....
Mar.	8.778	8.797	9.886	10.024	.....
April	8.568	8.795	10.277	10.198	.....
May	8.413	8.795	10.468	10.163	.....
June	8.362	9.154	11.014	9.648	.....
July	**8.338**	9.100	11.043	9.398	.....
Aug.	8.479	9.188	11.092	10.025	.....
Sep.	8.569	8.928	11.575	10.350	.....
Oct.	8.747	8.990	11.596	10.029	.....
Nov.	8.888	9.306	11.372	9.590	.....
Dec.	8.881	9.675	11.219	9.053	.....
Year.	8.665	9.046	10.750	9.977	.....

ANTIMONY IN JANUARY.

The antimony market showed a little more life in January than in the preceding month, and several large contracts were closed amounting altogether to 600 or 700 tons for deliveries over the first half of the year. The purchases were principally for Chinese and Japanese brands, and the prices paid ranged from 5⅜c to 5⅜c c.i.f. New York in bond, equal to 5.60c to 5.87½c

ALUMINUM, ANTIMONY AND SILVER IN JANUARY.

		Antimony			Silver	
	Aluminum	Cookson.	Halletts.	Hungarian.	New York.	London.
Day.	Cts.	Cts.	Cts.	Cts.	Cts.	d.
1.	.....	.....	.....	.....	.....	.....
2	18.75	7.37½	7.05	6.05	57⅛	26 7/16
3	.....	.....	.....	.....	57⅛	26 7/16
4	.....	.....	.....	.....	.....	.....
5	18.75	7.37½	7.05	6.05	57½	26 7/16
6.	18.75	7.37½	7.05	6.05	57⅜	26½
7	18.87½	7.37½	7.05	6.05	58	26¾
8.	18.87½	7.37½	7.05	6.05	57¾	26⅝
9	18.87½	7.37½	7.05	6.05	57½	26½
10.	.....	.....	.....	.....	57¾	26⅝
11	.....	.....	.....	.....	.....	.....
12	18.87½	7.37½	7.05	6.00	57¾	26⅝
13	18.87½	7.30	7.00	6.00	57¾	26⅝
14.	18.87½	7.30	7.00	6.00	57¾	26⅝
15.	18.87½	7.30	7.00	6.00	57½	26½
16.	18.87½	7.30	7.00	6.00	57½	26½
17.	.....	.....	.....	.....	57¾	26⅝
18	.....	.....	.....	.....	.....	.....
19	18.87½	7.30	7.00	6.00	57⅝	26 7/16
20.	18.87½	7.30	7.00	6.00	57½	26½
21	18.87½	7.30	7.00	6.00	57½	26½
22	18.87½	7.25	7.00	6.00	57⅜	26⅜
23.	18.87½	7.25	7.00	6.00	57½	26½
24	.....	.....	.....	.....	57⅜	26⅜
25	.....	.....	.....	.....	.....	.....
26.	18.87½	7.25	7.00	6.05	57⅝	26⅜
27.	18.87½	7.25	7.00	6.05	58	26¾
28.	18.87½	7.25	7.00	6.05	57⅝	26⅝
29	18.87½	7.25	7.00	6.05	57½	26⅜
30	18.87½	7.25	7.00	6.05	57¼	26⅜
31.	.....	.....	.....	.....	57¼	26⅜
High	19.00	7.375	7.10	6.10	58	26¾
Low	18.50	7.25	7.00	6.05	57⅛	26⅜
Av'ge	18.857	7.308	7.017	6.026	57.56	26.55

duty paid. Most of the sales were made just before the Chinese New Year, and since then the offerings from the East have been less frequent and at advanced prices.

The jobbing trade has undergone very little improvement, and for the fourteenth successive month the price of spot antimony has shown a decline. The average price of Cooksons antimony in November, 1912, was 10.31c, and the monthly averages since then have been as follows:

Nov. 1912	10.31c	July 1913	8.47c
Dec. "	10.06	Aug. "	8.38
Jan. 1913	9.66	Sept. "	8.30
Feb. "	9.31	Oct. "	7.66
Mar. "	9.03	Nov. "	7.52
April "	9.00	Dec. "	7.45
May "	8.77	Jan. 1914	7.31
June "	8.63		

This movement cannot be prolonged indefinitely, and it seems as though the time has almost come for an upward reaction.

The price fluctuations for the different days are shown in another column.

THE SELLING OF COPPER.

(Continued from page 57.)

South American imports	3,000,000
Total	9,700,000
Beer, Sondheimer & Co.	
British Columbia	8,500,000
Cuba Copper	6,000,000
Miscellaneous	4,000,000
Total	18,500,000
Calumet & Hecla. (Lake Copper.)	
Calumet & Hecla	50,000,000
Osceola	10,368,000
Allouez	4,014,000
Ahmeek	8,685,000
Superior	2,086,000
Tamarack	4,059,000
Isle Royale	3,660,000
Centennial	1,244,000
Total	84,116,000
Adolph Lewinson & Sons	
Miami Copper Co.	33,250,000
Shattuck-Arizona	13,200,000
Total	46,450,000
Direct to Trade. (Lake Copper.)	
Quincy Mining Co.	12,000,000
Stanton Mines:	
Wolverine 4,307,000	
Mohawk 5,778,000	10,085,000
Franklin	1,000,000
Mass.	1,300,000
Total	24,385,000
W. Parsons Todd.	
Winona	1,500,000
Lake Copper	800,000
Victoria	1,700,000
Total	4,000,000
Grand total	1,622,051,000

The rise of the American Smelting & Refining Co. copper selling agency has been phenomenal, the growth having taken place in the past eight years or nine years,—from the yearly sale of 50,000,000 pounds to ten times that amount. The heavy increase in amount of copper handled has been due chiefly to the rapidity with which the porphyry mines, all of which except Miami sell through this agency, have enlarged their production.

The above figures were based on last year's actual operations at American refineries. Were the Braden added to the Guggenheim tonnage the total would be 512,000,000 pounds. This copper does not figure in United States refinery or import statistics, but goes direct to Europe for sale. The American Smelting sales department, however, has the marketing of the Braden product.

The United Metals Selling Co. imported foreign copper more heavily than ever before. Aside from regular consignments of Rio Tinto product this company was credited from time to time with buying European warehouse material and shipping it here for refining and sale.—*Boston News Bureau.*

TRADE NOTES.

New York.

The Monitor Foundry Company is the name of a new concern which has begun business at 259 Norman avenue, Brooklyn, to make gray iron castings for the jobbing trade. Hyman Delinsky is president and Charles Forsman is vice president and superintendent.

The Batavia Canning Company, Batavia, N. Y., recently incorporated with a capital stock of $55,000, is having plans completed for a factory for the manufacture of canned goods and food products. R. M. Decker, K. B. Mathes and B. H. Wood are the directors.

The Meurer Steel Barrel Company, Port Jefferson, N. Y., has been incorporated with a capital stock of $350,000 to manufacture steel containers. Andrew and Jacob Meurer and William W. Share, Brooklyn, are the directors.

Pennsylvania.

The Cresson-Morris Company of Philadelphia, founders and machinists, will hold a meeting of its stockholders at an early date, with a view of reducing its authorized capital. Details of the company's plans are not made public. The company was formed some time ago by the consolidation of the George V. Cresson Company and the Morris Engineering Company.

The Olmstead Metal Products Company, Olmstead; has been incorporated; $30,000; by R. E. Humphrey, W. C. McCullough, William H. Millikan, F. S. Taylor and I. B. Buehrig.

Easton Car & Construction Company Easton; has been incorporated; $50,000; by W. E. Farrell, J. H. Pearson, Easton; Carl R. Grier, New York.

Missouri.

The Continental Brass & Foundries Company, St. Louis, has been incorporated with a capital stock of $25,000 by Ferdinand Messmer, of St. Louis; G. D. Klemme, of Belleville, Ill., and Jos. Messmer, of Kirkwood, Mo., to manufacture brass and other metal goods.

The American Electric Smelting Co., St. Louis, has changed its name to the Greene Process Metal Company. It is stated they will increase their facilities.

Ohio.

The Byesville Foundry & Machine Company has been started in Byesville, O., and will carry on a general foundry business. Both iron and brass castings will be made and a machine business carried on. The officers of the new company are: President, T. W. Scott; secretary, C. C. Cosgrove; treasurer, A. J. True; and manager K. M. Garner.

The Lake Erie Nail Co., Cleveland, has been incorporated with a capital stock of $1,000 by B. A. Gage, C. S. Wachner, others.

The American Malleable Castings Company, Marion, O., will enlarge its plant by the erection of two buildings, one 30x175 ft. and another 60x65 ft., to be occupied by its cleaning department and annealing ovens. An office building, 40x50 ft., will be erected.

Indiana.

The Atlas Battery Company has been incorporated in Anderson, Ind., with a capital stock of $25,000 to manufacture batteries. Among the incorporators are M. L. Ashbaugh, C. J. Murray and R. McCain.

The Bastion-Morley Company has been incorporated in South Bend, Ind., with a capital stock of $100,000 to manufacture gas, gasoline and electric apparatus. The directors are James P. Morley, John P. Hayes and J. Morley. The Chicago office of the company will continue their present office.

The Central Boiler & Sheet Iron Works, Indianapolis, has been incorporated with $10,000 capital stock to manufacture boilers, tanks, etc. The directors are F. J. Schneider, M.P. Herter and M.N. Schneider.

Wisconsin.

The West Bend Aluminum Co., West Bend, Wis., has increased its capital stock from $25,000 to $50,000 and intends to build a large brick factory addition in the spring. The company was established little more than a year ago and long since reached the limit of its capacity. The product is aluminum kitchenware and utensils.

The Hartland Mfg. Company, Hartland, Wis., recently reported incorporated, is in the market for molding machines and wishes prices on malleable castings. The company manufactures metal trace fasteners for horse-drawn vehicles. Address T. A. Bakker.

TRADE NOTES.

Michigan.

The Saxon Motor Car Company has been organized in Detroit, with a capital stock of $350,000 to manufacture automobiles. The company is an outgrowth of the Chalmers Motor Co. of Detroit and all the officers of the new company are those of the Chalmers Company.

The Johnson-Slocum Company, Caro, Mich., manufacturer of steel specialties, is adding a department for the manufacture of sheet metal specialties. F. A. Smith will be in charge of the new department.

The Detroit Battery Company, has been incorporated by William H. Ducharme, Myron G. Pierson and George R. Beamer to manufacture batteries. The capital stock is $10,000.

The New Brass Works, 835 Superior St., Detroit, has been incorported by John B. Schmandt, president and H. T. McClune, secretary.

Illinois.

The Union Wrapping Machine Co., Joliet, has been incorporated with a capital stock of $17,600 by Frank Streich, Paul Franke and Fred E. Kemp to engage in manufacturing a special device.

The Steel Stamping Company, Chicago, has been incorporated with a capital stock of $15,000. The company may be addressed in care of E. A. Zimmerman, attorney, 155 North Clark street.

The Southern Illinois Machine & Foundry Company, Murphysboro, Ill., has increased its capital stock from $20,000 to $50,000 for the purpose of increasing its manufacturing equipment and general facilities.

Holmes Pyatt & Company, 159 N. Jefferson St., Chicago, iron founders, have taken out a charter providing for a capital stock of $200,000, and have under development extensive plans for development of operations.

A. H. Anderson, 1215 Fulton St., Chicago, whose plans for a brass foundry, 25x120 ft., one and two story, was recently announced advises that he will add to the equipment when it is ready.

Art Metals Products Co., Chicago, incorporated; boxes, cases, metallic articles, etc.; $20,000; by Albert Dahlgren, William R. Rocklin, Clarence Olson.

New England States.

The Chappell Brass Fdy, has been started at 281 Dyer St., Providence, R. I., by Leon Chappell. The manufacture of brass, bronze and aluminum castings will be carried on.

The Natick Steel Equipment Co., Natick, Mass., has been incorporated in Massachusetts with a capital stock of $10,000 and will manufacture steel chairs, stools, ladders and other similar equipment. George W. Trevis is the president.

The Millbury Steel Fdy Company, Millbury, Mass., is projecting an addition to its plant. W. W. Brierly has been made general manager of the business as a promotion from superintendent.

The Hatheway Mfg. Company, Bridgeport, Conn., manufacturer of sheet metal and wire goods, is planning to start a branch factory in Hoboken, N. J., and will be in the market for power press equipment, single and double action.

Southern States.

The Kentucky Coal & Iron Co., Chattanooga, Tenn., has been incorporated with a capital stock of $100,000 by James Adams, O. P. Darwin, J. H. McCallum and others.

The Louis Warner Stove Company has been organized at Shreveport, La., with a capital of $500,000. Louis Warner is president and treasurer; B. A. Kobler, vice-president, and R. Latzke, secretary.

Wheeling Metal & Mfg. Co., Wheeling, W. Va., is to build an addition to its plant at Glendale to be used for production of tin and galvanized iron shingles.

Western States.

The Pacific Iron & Steel Co., Tacoma, Wash., will immediately commence the construction of an electric smelter, to cost $50,000. A 50-year lease has been signed with the city of Tacoma for a large tract of tideland on the middle waterway, and company plans erection of five furnaces, first unit to be in operation April 1st, and others to follow immediately. The company will manufacture pig iron and steel. Geo. L. Casey, of Seattle, is president of the company, and E. L. Nixon, of Seattle, treasurer.

The Nelson Mfg. & Supply Company, Hutchinson, Kan., is erecting a tank shop in connection with a brass foundry.

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THE TRADE OUTLOOK.

In reviewing the remarkable outburst of confidence with which the New Year opened, and the constantly increasing optimism that marked the month of January, our readers will remember we took occasion to say that business sentiment was clearly getting far ahead of the real trade procession; that miracles do not take place in business; that fundamental conditions pointed to only a slow general revival in business, and that if the sentimental pace was continued at the January rate, we would have to retrace our steps later on. That, if there should be a reaction in confidence during February, it should not create depression or disappointment; that our business recovery would continue to make progress, and if not at as rapid a pace as our January hopes lead us to believe, it would be because we had been extravagant in our expectations. What we intended to convey was that such a movement as we had in January could not continue on sentiment alone, but must be backed by concrete and physical business developments, and seeing that these developments would be slow, we cautioned against extravagant hopes, and pleaded for conservative views regarding the future.

Anticipations Confirmed.

The history of the past month has illustrated that our point of view was justified. There has since been a gradual fading away of the enthusiasm and confidence of January, and a growing feeling of disappointment if not depression over the failure of the revival in business to respond to the hopes with which the New Year opened.

Washington Responsible For Change In Sentiment.

It was inevitable it should be so, but we hardly anticipated that it would be intensi-

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fied as it has been by the unjustified, unnecessary, reprehensible and reckless conduct and attitude of some powerful interests at Washington. The promise of peace to business that was proclaimed by President Wilson, and so eagerly believed in and welcomed by business interests, has not been kept. If open hostility has not broken out again, there are evidences that it is only a truce, that our legislators are preparing for further hostilities in their well meant but nevertheless unwise desire to further regulate business, already shackled, confined and disturbed. "Rome was not built in a day", but the army of theorists so prominent in affairs, believe it is in their power to change the conditions along which business has been conducted for a generation, and to do it all within the time of their limited term of office.

No wonder depression and apprehension is succeeding to confidence, and no wonder that recovery lags. If there is any doubt regarding the effect of their proposed activities, the list of the unemployed in the country is the answer.

Business Depends On Peaceful Conditions.

You can make laws to regulate business, but you can't make laws to enforce confidence, to make a buyer buy goods, or risk his money in new enterprises, or run his factory unless he has orders. You can't legislate prosperity, but you can retard prosperity by refusing to permit business to follow its normal developments, and for which, confidence is the air it breathes.

Theorists, Not Business Men At The Helm.

We have such illustrations to-day as Mr. Brandeis, a lawyer, with no railroad experience, arguing and apparently believed, that the railroads can save $300,000,000 per year if properly conducted, and therefore that no advance in railroad rates is necessary.

We see Prof. Jenks of Columbia, being accepted as knowing more about the conditions and market prices of the iron and steel trade than the trade papers, whose entire existance depends on a correct and up-to-date knowledge of the trades they represent. Is it any wonder business men are demoralized and consider it useless to offer their knowledge, experience and views for the guidance of our legislators, since every theorist is accepted at par, and every business man's testimony at a discount.

Digest of Conditions Brings The Situation Up To Where It Originates

We have compiled on another page a digest of what seems to us the favorable and unfavorable features of our business situation, and it is difficult to reach any other conclusion, than that nearly all that is unfavorable can be traced to general lack of confidence, which finds its source in Washington. No war, plague, speculation or business excesses, overproduction or failure of natural or individual resources has put us where we are to-day, with our basic industry, iron and steel, recovered to only 70 per cent of normal, with general business probably not much better, and those industries making the best showing only 80 to 85 per cent of normal, and consequently an army of unemployed men. There is plenty of money, and energy, but very little confidence.

Of course, consumption and buying is curtailed, since they depend on full employment and the power of the individual to buy beyond bare necessities of life, and the ability of our largest consumers of materials, the railroads, to make purchases, and the confidence of the manufacturer and capitalist to go ahead in expenditures and developments with an eye to further requirements.

Where Is The Haman Gallows ?

We were threatened a few months ago with a gallows higher than Haman for the employer of labor who dared to discharge his hands or cut wages. Is it because that those who made the threat realize an investigation would disclose that conditions were created at their own doors that nothing is done? Instead we find an investigation of unemployment proceeding along the lines of "distributing' labor, which will of course be useless, as it is not lack of distribution but lack of work that is the trouble.

It is interesting, and to be noted as a good sign, that the sensational journals and magazines are abandoning their campaign and outcry against what is known as big business and its crimes, although the suffering of the common "peepul" to whose interests they are so solicitous, is a more uncomfort-

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able one than for years.

All this is so well known to business men for whom we write, that it is unnecessary to dwell on it.

What Of The Future?

But what of the future? Mr. J. J. Hill said the other day that this is a big country and it takes a good many men to hold it down. Is the outlook as discouraging as it seems? We think not. Painful as the experience is, it carries its cure, and we believe the Washington bark will be gradually muzzled to a growl, and that the bite will not be forthcoming. Evidences of distress are too universal and apparent, to be laid at the door of political foes, or selfish business interests. We expect to see a change in the attitude of those in power, a fading away of socialistic and experimental legislation of business, and a growth of appreciation of the real cause for present conditions, and an appreciation that safety lies along the lines of packing away theoretical ideas of business in lavender for future contemplation, and dealing with a wicked and perverse business world along the lines of humdrum common sense.

We predict also that our railroads will be granted an advance in rates before midsummer, and that as the activities of Washington are curtailed, business will gain in confidence and volume and unemployment will decrease.

Also that if the outlook for crops is good by midsummer, trade will by that time be in full swing.

DR. JENKS IN THE STEEL SUIT.

The Purchasing Power of Steel.

No great court case is complete without its expert witnesses. In the steel corporation suit the government adduced Dr. Francis Walker, who showed that over considerable periods of time steel prices had not changed, hence there must have been an agreement. He insisted that he had learned from experience that when there was control of prices the prices would be stationary, more or less, while when there was no control the prices would fluctuate continuously.

In its turn the United States Steel Corporation adduced an expert, selecting Dr. Jeremiah W. Jenks, who, by the way, attracted considerable attention in the summer of 1900 by his statistical attack upon the American Tin Plate Company which less than a year later became a part of the steel corporation the professor now undertakes to defend. Dr. Jenks insists that trade paper quotations do not mean much. They simply represent general trends, and do not represent buying and selling prices. Inasmuch as many of the men who furnish trade newspaper reports are trained experts in their line, occasionally with longer and broader experience than the sales agents and purchasing agents who are the principals in the transactions in question, the professor's qualification as an expert to judge of the work of these market reporters was hardly established with sufficient authority by the testimony elicited from him.

Dr. Jenks, however, exercised a dual function as the steel corporation's expert. After attacking the accuracy of iron and steel trade newspaper quotations the professor proceeded to compute the "purchasing power of steel" and there is hardly any occasion to doubt that in making the computation he used the trade newspaper quotations. He could hardly have risen superior both to the experts who report iron and steel quotations and also the experts who report quotations on other commodities, so we take it that his questioning the accuracy of trade newspaper quotations was largely formal and with reference to relatively insignificant details.

The steel corporation undoubtedly strengthened its case by bringing testimony as to the purchasing power of steel. The information is not new to the public. Comparisons have often been made, showing that while steel prices have advanced, as compared with the low level reached in the nineties, they have not in recent years been as much above the historic low level as have commodities in general. The divergence between steel prices and commodity prices has often been mentioned in connection with wage rates, steel manufacturers taking the ground that, other things being equal, he is now placed at a disadvantage, for wages have advanced largely in proportion to the advance in commodity prices in general, as fixing the

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cost of living to the employe in the steel mill, while the selling prices of steel have not advanced in full proportion.

It is of course idle simply to compare prices of given commodities at different periods and assume that the profits in their manufacture have been in proportion, so that Dr. Jenks' comparison of steel prices with commodity prices in general is illuminating. However, the comparison is merely a step in the right direction, and falls far short of going to the root of the matter. It shows that in general the steel industry has given a good account of itself, that while commodities other than steel have advanced very largely in price, steel has not advanced so much. It may or may not be the case that the United States Steel Corporation, in its formation and conduct, is responsible for the divergence; obviously it does not necessarily follow from the facts stated.

A mere glance at the history of the steel industry suggests at once that while the study of comparative prices is interesting and useful, no comparisons can be made which would be conclusive, because the steel industry has undergone such wonderful changes in a comparatively short period. Steel prices are studied for the period of 13 years which have elapsed since the steel corporation was formed, in 1901, while to go back an equal distance would bring one to the year 1888, when steel was the regular material for rails, but for nothing else. The wire nail was only coming into favor, pipe manufacturers were just beginning to conclude that wrought pipe could be made of steel, plates and sheets were made almost exclusively of iron, structural shapes were hardly being made at all, and merchant bars were not only made altogether of iron but were destined so to be made for quite a number of years. It is a mild statement to assert that the prosecution in this suit does not depend more upon the conduct of the steel corporation in recent years, than upon the circumstances surrounding its formation, in its hope of winning the suit, hence it seems to follow that the course of prices during the entire 13 years of the corporation's existence may rightly be considered as having more or less bearing, but if so then the course of prices for something like an equal number of years preceding could properly be cited for comparison, provided fundamental conditions bore some reasonable similarity. There is no similarity in conditions, when there were no regular steel prices in the case of a number of commodities until the years quite closely preceding the corporation's formation, and the prices for these few years are necessarily taken by Dr. Jenks.

The value of Dr. Jenk's testimony lies in its showing simply that the public has not lost in a general sense through the steel industry. It pays proportionately greater advances for other commodities than it does for steel. It does not follow that the steel industry makes less profits per ton than formerly, nor would it follow that the steel industry would be making more profits per ton than formerly, were its prices representative of a greater advance than has occurred in the commodity index numbers. For example, let the physical work involved in mining, transportation and manufacture be assumed to be unchanged, then the cost of a ton of pig iron would be greatly increased in the past 15 years, for ores must be sought farther underground, and through decreased iron content more raw materials, ore, coke and limestone, must be used to produce the ton of pig iron. Again, assume all costs, including labor costs, but excluding interest and depreciation, to be unchanged, then again the cost of manufacture would be found to have greatly increased, since the common investment per ton of output has been greatly increased. Assume on the other hand that no costs have changed except labor costs, then the cost of finished steel should be greatly reduced.

The most sweeping changes have indeed occurred. The burden on the steel manufacturer has been increased by having to deal with less pure iron ore and less satisfactory coking coal, by freight rates having increased, by day wage rates greatly increasing, by fuel and other supplies greatly advancing and by interest and depreciation charges greatly increasing. On the other hand the manufacturer has greatly improved his processes, getting better results from similar raw materials, saving on his waste products, obtaining much more power or heating value from his coal, greatly reducing the amount of manual

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effort involved per unit of output, and so on. If the first group of changes only had occurred steel would to-day be very high priced; if only the second group of changes had occurred steel would now be much cheaper than it was 15 years ago. The actual condition is that the manufacturers have at least partially overcome the disadvantages growing out of higher commodity and other costs, which they themselves pay in the case of their supplies and also in the case of their wage rates, and still give the public steel at lower prices, relative to the other commodities the public buys, than they did 15 years ago.

THE COMMERCIAL HORIZON AND IRON ORE RESERVES.

The iron ore reserves of the world, a subject which has been elaborately treated at various times in the past few years, is succinctly and interestingly handled in an article on another page. We are indebted to the "Mining and Engineering World" for the article, which was written by C. K. Leith of the University of Wisconsin.

According to nomenclature properly adopted some years ago, iron ore reserves are commonly divided into "actual" and "potential." In a general sense the "actual" reserves are those which can be used with present practice and are in a general sense commercially valuable, while "potential" reserves are such as we can fall back upon when we have nothing better, by modifying our practice and by submitting to a considerably higher production cost for the pig iron.

The actual reserves are such as to last the world about 180 years at the present rate of consumption, or, allowing for an increase in the rate of consumption in the future, a considerably shorter period of time. The geologist or economist may stop there, but the business man takes a more precise view and at the same time has a narrower horizon. He considers that the industry which consumes iron ore and turns out iron and steel castings and rolled steel, as well as the industries which convert these products to the use of man, are in a constant state of flux. As a rule they are rebuilt entirely in much less than a generation. This rebuilding is occasioned by changes in methods and appliances and by changes in the character of demand. Even if there were no such changes to be reckoned with, the business man's horizon would still be relatively limited, seeing that it is no burden at all to replace capital in a fraction of a century. An annual contribution of 1% to a sinking fund will replace the capital in 41 years if the sinking fund earns 4% interest, in 36 years at 5% and in 33 years at 6%. With a 2% contribution the periods become 28, 25 and 23 years respectively. The immediate risk in these industries is much greater than 1% or 2%; it is frequently close to 100%, hence the business man has no occasion to worry about conditions a quarter or a third of a century hence. To round out and put the finishing touches on the proposition he may take care of the contingency, which he can readily do by the establishment of a sinking fund which requires an almost negligible annual contribution. As a matter of fact he expects the business so to prosper and grow as to cast entirely in the shade such a slow process as restoring the capital originally invested, at the end of a quarter or a third of a century.

At the same time that processes and appliances become obsolete the possibilities of economic use of lower grade ores increase rapidly. Furthermore, methods of preserving iron when in use are undoubtedly advancing. Means of collection of scrap constantly improve. The scrap dealer recognizes as an elementary proposition that the collection of scrap is purely a question of cost. His viewpoint of this is just as clear, though necessarily not as precise, as that of the blast furnace manager considering his cost of making a ton of pig iron from the raw materials.

The bearing of this observation is that the store of iron in use is constantly increasing, not by the relatively slow rate that population increases, but by the rapid rate at which the per capita needs increase. A quarter century ago (our estimates are necessarily rough, but we believe they are amply accurate for the argument) the store of iron in use in the United States was about one ton per capita, distributed at an average of 20 tons per square mile of the country's entire area. To-day the store is fully three tons per capita, distributed

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100 tons per square mile. The constant increase in the density of distribution of the store of iron will necessarily make the old material more and more easily recovered, to which influence is added the influence that iron in use is being better and better cared for, hence assuming that the character, the form in which used, of the iron does not change, the proportion of the total make which will be recovered eventually and reworked will steadily increase. It is true that a somewhat larger proportion of the total make goes into the little things now than formerly, but even as to the little things the tendency to recover larger proportions will exist, unless iron made of ore fresh from nature's store continues to sell at a relatively low price.

In connection with this return of iron from a period of use so that it may be reworked for a new period of use there is this important element, that up to this time the period of return has been shortening. Things move faster nowadays. Machinery becomes obsolete more quickly. Many more trains run over a mile of track now than ten or twenty years ago, and the rails wear out more rapidly, and in cases where the life of material is shortened, the proportion of the material which is recovered is naturally increased.

From all these considerations it seems perfectly plain that whereas at present our reworking of old material is only say 10% of our total production of material for use, in a few years, perhaps only a decade or two, the proportion instead of being one to nine will be one to two, and quite likely within a fraction of a century the proportion will be one to one, i. e., we shall make as much finished product from old material as from iron ore. Thus the requirements of the people for new machinery and new conveniences may continue to increase, and increase rapidly, without there being a correspondingly great increase in the drain upon the iron ore reserves.

THE RAILROAD RATE CASE.

It is fairly obvious that the railroads in their case before the Interstate Commerce Commission are contending, not for the sum of $50,000,000 per annum, or any other specific sum involved in the advanced tariffs filed and suspended, but for a principle, the principle that, in certain circumstances they are to be permitted to advance their charges.

It is equally obvious that in withholding orders for steel and other commodities they are endeavoring to create sentiment in their favor. In some quarters their action is somewhat uncomplimentarily called "playing politics" but in a broader sense they may be regarded as giving an object lesson, perhaps a much needed one, of the conditions which could easily result were the railroads denied any and all rate advances at all times and in all circumstances.

What is not so obvious, but is beginning to seem rather reasonable, is that the issue is not directly with the Interstate Commerce Commission, but with the people, that the condition is not that of the commission having "something up its sleeve" by way of information that the railroads do not need any advances, but that it is rather a condition of the commission endeavoring to follow public sentiment to a very considerable extent in its decisions. No one contends that there is any ascertainable rule which would determine precisely what railroads should have. There is considerable latitude. There is involved the formulation of a general policy as to how much the country may be expected to grow industrially and in its needs for passenger and freight movement, and how much the railroads should be permitted to anticipate this growth. In other words, in one case the country may grow, hampered by poor facilities, but forcing better facilities, while in the other the railroads may be kept in the van, constantly furnishing better facilities and encouraging the country to grow. Between these two extremes there is considerable lattitude, and it is really for the people to determine which policy shall be adopted. The Interstate Commerce Commission is in existence merely to carry out a policy after the people have signified approval in one way or another.

From this viewpoint there is reason to conclude that there is occasion for the commission to look with more favor upon the present rate case than six months ago, for clearly the weight of public sentiment has become much stronger in favor of a decision for the advances.

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THE PITTSBURGH-VALLEY COAL RATE CASE.

The disposition in some quarters to regard the decision in favor of the railroads in the Pittsburgh-valley coal rate case as a hint of what will be done in the 5 per cent. rate advance case of the eastern roads suggests failure to study carefully the circumstances surrounding the coal rate case. Officially it is known as "Youngstown Sheet & Tube Company, et al., vs. Pittsburgh & Lake Erie Railroad" and involves one of a set of complaints filed over two years ago. The coke case was settled some time ago, the rate from the Connellsville region to the Mahoning valley being reduced from $1.35 to $1.20, while the ore case is in abeyance, awaiting final settlement of the Pittsburgh ore rate.

The Interstate Commerce Commission's refusal to reduce the coal rate from the Pittsburgh district to the valleys from the present level of 70 cents is not, in our opinion, any evidence whatever that the commission is looking at rate questions in any different light than formerly. There are those who seem to think that there is an even pull between the railroads and their patrons, in any case that comes before the Interstate Commerce Commission, so that when the commission decides in favor of the one party or the other it shows a general leaning of the commission in favor of that party. It is much more reasonable to take the viewpoint that instead of there being differences in the commission's attitude there are differences in the amount of justice in various contentions of shippers. Not all complaints, surely, are of equal merit. The commission's findings in the Pittsburgh-valley coal case is backed by a great deal of clear argument indicating that the railroads are reasonably entitled to this 70-cent rate. It is not really a high rate.

Certainly the reduction in the Connellsville coke rate of $1.35 to $1.20 did not pave the way for a reduction in the 70-cent rate from the Pittsburgh coal district. Coal rates in general in the central west have been low compared with coke rates, so much so that it is usually the case that one could ship a given quantity of coal over a given route at a lower cost than one could ship the quantity of coke which that coal would make, on the basis of a two-thirds yield. That is hardly as it should be. The time is coming, furthermore, when the present distinction between the Pittsburgh coal district and the Connellsville coke district will be eliminated. To-day there is a general difference in distances, Connellsville being the farther from the valleys, but the difference is not very great, and as developments proceed the difference will be decreased. By-product coking is increasing at a rapid rate, and it will soon be very common for mines side by side the one to produce coke in beehive ovens the other to ship coal for use in retort ovens, at the point of consumption for the coke. There is no principle thus far recognized by the Commission and therefore none that is at all likely to be recognized in future, whereby such coke could be placed under much heavier freight charges per ton than the coal from the same neighborhood. The reduction in the Connellsville-valley coke rate to $1.20 was easily justified; possibly a greater reduction could with justice have been made, but in refusing to reduce the Pittsburgh-valley coal rate below 70 cents we do not see that the Interstate Commerce Commission exercised any particular friendliness to the railroads, and we cannot therefore see that this decision has any bearing, or furnishes any promise, with respect to the general case of the eastern railroads for a 5 per cent. advance in all rates.

THE PIG IRON STATISTICS.

The official statistics of the production of some iron and steel items furnish important news by reason of the trade not having been informed beforehand as to the probable tonnage. This is not the case with pig iron, the 1913 statistics for which are given in detail on another page, since the calendar year's production is always known within a narrow margin prior to the announcement of the official statistics. When the pig iron returns come out the interesting thing is not to study the total of production, but to compare it with various forecasts that have been made and expectations that have been entertained, to

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observe whether things have turned out better or worse than expected. In the "American Metal Market" of May 12, 1913, we forecasted the first half output at 16,650,000 gross tons, which the official statistics afterwards showed was 162,000 tons too high. In making the forecast we allowed for a decrease in the rate of production from that date to July 1st, but events showed a decrease three times the amount we allowed for. Thus it will be seen that as early as the fore part of May the expectation was clearly for the pig iron production rate to decrease. The expectation was, furthermore, that there would be a very considerable decrease in the second half of the year. Our forecast, made at that time, was in substance that second half output would be 1,500,000 tons less than first half, and in making it we observed that the view was probably much more favorable than that taken by the trade at large. Now, however, we find that the second half output was 2,011,903 tons less than the first half output.

So, on the whole, we may say that while the 1913 output of 30,966,301 tons was much less than was to have been expected from the viewpoint of the first couple months of the year, when production was running at the rate of about 34,000,000 tons a year, it was approximately what had come to be expected by the fore part of May. There is, however, this to be pointed out, that what was then expected was a gradual tapering off, a very considerable loss in the third quarter and perhaps only a slight further loss in the fourth quarter, but what occurred was only a slight loss in third quarter, production being really nearly up to the mark, and then a sharp drop in the fourth quarter, with exceptionally light production in December owing to the banking of a large number of furnaces in the closing ten days of the month.

There is now the very interesting but extremely difficult question, what will be the production this year? Expressing the views in figure, the ideas of the trade last October or November probably meant between 20,000,000 and 25,000,000 tons this year. The view of January 1st probably represented 25,000,000 to 27,000,000 tons. Views to-day, only a month and a half later, are various, the differences being largely temperamental, i. e., there has been a decided improvement in trade conditions and prospects, and some are quick to conclude that the improvement will rapidly work into a very high rate of output, while others expect the improvement to work out in actual production rather slowly. In other words, there is no difference of opinion as to a rate of 34,000,000 or 35,000,000 tons being reached within a twelve-month, but much difference of opinion as to whether we shall reach a rate of 30,000,000 tons (the rate at the moment is between 25,000,000 and 26,000,000 tons) as early as April 15th or as late as, say, October 15th. Thus one person might predict 13,000,000 tons for the first half of this year, 16,000,000 tons for the second half and 17,000,000 or even 18,000,000 tons for the first half of next year, while another might predict 15,000,000 tons for the first half of this year, 17,000,000 tons for the second half, and 17,000,000 to 18,000,000 tons for the first half of next year. We do not mention the views of those who did not believe we could have any prosperity until the tariff should be revised to the old fashioned lines. They have gone into retirement and do not wish to be disturbed.

Between the limits of conservatism and hopefulness we make two predictions, 14,000,000 and 15,000,000 tons for first half and 16,000,000 and 17,000,000 tons for the second half, or 30,000,000 and 32,000,000 tons, respectively for the year. The conservative view is that we shall fall short of last year's output by a million tons; the hopeful view is that we shall pass that record by a million tons. We think there are good chances of our passing last year's record as there are of our falling behind it.

NEW RAILWAY MILEAGE.

Revised figures issued by the "Railway Review" show that the total mileage of new railroad built in the United States during the calendar year 1913 was 3,419.87 miles.

In 1912 the total new mileage was 3,703.81. For the year 1911 the total was 3,695.46. The new mileage laid in Canada during the calendar year 1913 was 3,216.80, which compares with 2,315.46 miles in 1912 and 1,905.62 miles in 1911. In Mexico railroad construction has been almost at a standstill owing to disturbed conditions there.

DIGEST OF BUSINESS CONDITIONS.

FAVORABLE.

1.—**Banking and Currency** system for the first time in 50 years established on a sound foundation; as a prominent banker says: "Good-bye to financial stringency and upheaval."

2.—**Tariff** question settled for years. The new tariff accepted by all interests, and as far as can be traced is not responsible for closed factories, has not reduced wages, and gives every prospect of our not only holding our home trade, but increasing exports of manufactured goods due to cheaper raw materials.

3.—**Easy money** world wide, and lowering of interest rates.

4.—Strong **Banking Situation** here and in Europe. The reserves of the National Banks of U. S. are increasing, and are higher than in 1913 or 1910. Large increase in gold reserves with European banks. Heavy demand for gold from India, a perplexing feature during 1913, shows signs of returning to normal.

5—Interior banks of the United States that were estimated to be carrying more temporary paper for customers at stiff rates at close of 1913 than since 1907 panic, have had loans liquidated by the ability of borrowers to sell their paper in open market at low rates.

6.—Probability of serious **political complications** in Europe virtually eliminated.

7.—**Crop** outlook good—record acreage of Winter wheat. Ideal moisture and snow protection.

8.—**Competition** increasing efficiency, less extravagance in civil and individual expenditures.

9.—Growing **improvement in iron and steel trade.** Increase in U. S. Steel Corporation's unfilled orders. Pig Iron production in February at the rate of 67,458 tons per day as against 60,808 tons in January. Annual production at the rate of 22,200,000 tons in January increased to 24,600,000 tons in February, a gain of 11 per cent, although considerably below the 1913 rate which was about 31,000,000 tons.

UNFAVORABLE.

1.—**Government Anti-Trust Bills,** known as the "Five Brothers," to further regulate business, which have caused a complete reaction in the optimistic sentiment of January and early February. If passed, as at present indicated, will be more drastic than anything that has gone before.

2.—**Delay in R. R. rate decision.** Prospects of increase in rates if any at all, deferred until physical valuation has determined the approximate capital on which interest and dividends should be paid.

3.—**Unemployment of labor.** Result of reduction in factory operations, which decreases the purchasing power of the community.

4.—**Balance of trade** shows considerable falling off.

Imports decrease
Exports decrease

5.—**R. R. earnings show heavy decrease** below last Winter, in spite of comparative betterment in weather conditions west.

6.—**Business failures** continue numerous. January failures heavy both in point of number and liabilities.

7.—**Bank clearings** show falling off from last year reflecting decreased business activity.

8.—**Coal trade poor,** due in the case of anthracite to mildness of the early Winter, and in bituminous to industrial reaction.

9.—**Gold production** in 1913 shows approximate declines of $5,000,000 in U. S., $5,000,000 in Mexico, $5,000,000 in Transvaal, $1,000,000 in Australia. Estimate made by Transvaal Chamber of Mines that the present rate will probably not continue beyond 5 years, after that a further decrease is to be expected.

10.—**Investment buying of bonds** falling off again. Little to encourage new confidence or enterprise.

11.—**Decline in copper prices.** Producers' prices reduced ½c per lb. on account of slack domestic demand.

12.—**Mexican Situation.** We place this at end of list for while it would affect speculation and perhaps some financial interests, we doubt if it has a serious affect on actual business operations.

BUSINESS TRENDS.

BUILDING OPERATIONS.

The record of building expenditures at leading American cities, according to Bradstreets, reporting monthly, quarterly and yearly from January, 1912 down to and including January, 1914, shows the ebb and flow in the building industry in the past 25 months, as follows:

	Cities.	1913.	1912.		
Jan.	145	$54,340,566	$48,692,024	I.	11.6
Feb.	145	61,141,275	51,494,295	I.	18.7
Mar.	146	81,220,555	76,409,845	I	2.2
1st quarter		196,702,395	179,596,164	I.	9.5
Apr.	145	96,918,246	103,189,722	D.	6.0
May	146	88,706,252	95,008,769	D.	6.6
June	146	80,859,958	96,058,920	D.	16.6
2d quarter		266,484,451	295,157,411	D.	9.7
Six months		463,186,846	474,753,575	D.	2.4
July	145	75,501,375	87,580,278	D.	13.7
Aug.	146	63,720,880	83,462,183	D.	23.6
Sep.	143	76,720,050	68,680,476	I.	11.7
3rd quarter		215,942,305	239,722,967	D.	10.0
9 months.		679,129,151	714,476,512	D.	5.0
Oct.	144	63,035,385	73,128,886	D.	13.8
Nov.	145	50,405,703	71,176,911	D.	29.1
Dec.	146	67,409,818	72,180,455	D.	6.6
4th quarter		180,847,906	216,486,252	D.	16.4
Year		859,977,057	930,962,764	D.	7.6
		1914.	1913.		
Jan.	85	27,460,600	34,546,732	D.	20.5

THE STOCK MARKET.

The volume of stock transactions on the New York Stock Exchange during the month of February reached a total of 6,175,873 shares, against 10,012,404 in January and 6,578,684 in February, 1913. The par value of bonds sold during the past month amounted to $69,081,000, as compared with $88,823,600 in January and $48,734,000 in February of last year. The aggregate of stock transactions for the first two months of 1914 is thus brought up to 16,188,277 shares, against 15,247,640 shares sold during the corresponding period in 1913. Bond sales for the two months of 1914 amounted to $157,904,600, as compared with $94,191,000 last year.

The daily average of stock sales during February was 280,722 shares, against 385,092 in January and 302,086 in February, 1913. The daily average of bond transactions was $3,140,045, as compared with $3,416,292 the previous month and $2,180,205 in February of last year.

The subjoined table shows the transactions in stocks for the month of February during a series of years:

Stocks, Shares.			
1914.....	6,175,873	1906.....	21,530,072
1913.....	6,578,684	1905.....	25,422,372
1912.....	7,030,882	1904.....	8,543,669
1911.....	10,101,577	1903.....	10,948,233
1910.....	15,954,944	1902.....	13,021,133
1909.....	12,192,161	1901.....	21,681,202
1908.....	9,809,923	1900.....	15,185,067
1907.....	16,355,952		

The February figures covering bond transactions since 1900 follow:

Bonds, Par Value.			
1914.....	$69,081,000	1906.....	$59,902,000
1913.....	48,734,000	1905.....	112,344,500
1912.....	51,686,000	1904.....	35,673,500
1911.....	71,809,500	1903.....	65,168,200
1910.....	64,087,500	1902.....	85,531,500
1909.....	110,975,720	1901.....	21,681,202
1908.....	58,299,700	1900.....	43,985,000
1907.....	32,087,262		

PIG IRON PRODUCTION.

The Iron Age figures production of pig iron in February at 1,888,813 tons, as compared with 1,885,054 tons in January. Owing to wire trouble from the recent storm, returns from a few centers are still missing, but these do not greatly affect the total. The daily rate of production in February was 6,650 tons above January. Number of blast furnaces in operation on March 1st was 218, against 197 on February 1st.

Daily rate of production of coke and anthracite pig iron, gross tons:

	1910	1911.	1912.	1913.	1914.
Jan. .	84,148	56,752	66,384	90,172	60,808
Feb...	85,616	64,090	72,442	92,369	67,458
Mar...	84,450	70,036	77,591	89,147	.....
April.	82,792	68,836	79,181	91,759	.....
May..	77,102	61,079	81,051	91,039	.....
June .	75,516	59,585	81,358	87,619	.....
July..	69,305	57,841	77,738	82,601	.....
Aug..	67,961	62,150	81,046	82,057	.....
Sep...	68,476	65,903	82,128	83,531	.....
Oct...	67,520	67,811	86,722	82,133	.....
Nov...	64,659	66,648	81,697	74,456	.....
Dec...	57,349	65,912	89,766	63,987	.....

BUSINESS TRENDS.

COMMERCIAL FAILURES.

R. G. Dun & Co. reported 51 more commercial failures in the United States during February than in the corresponding month in 1912; the liabilities showed a material decrease as compared with that time. Total insolvencies last month numbered 1,505 and supplied $22,354,193 of defaulted indebtedness, against 1,454 in February, 1913, when the amount involved was no less than $28,141,258. In February, 1912, 1,539 business reverses occurred for the sum of $21,477,923; in 1911 there were 1,198 suspensions for $17,086,471, and in 1910 only 1,067 concerns failed, although the aggregate debts exceeded $27,400,000.

IDLE RAILWAY CARS.

According to the fortnightly bulletin of the American Railway Association there was a net surplus of freight cars on the lines of the United States and Canada on February 15th of 197,052, a decrease of 12,626 cars as compared with the report issued February 1st.

For the same period last year the association reported a net car surplus of only 22,183, that representing a decrease of 15,000 cars compared with the previous figures. A decrease of 12,000 cars at this time of the year is not important in itself as the weather frequently has as much to do with the lessening of car surpluses as quickening of freight traffic. The fortnightly figures are given below with the returns for previous periods. Figures representing net surplus of idle cars except where otherwise indicated.

1914—		Aug. 1	58,445
Feb. 15	197,052	July 15	69,405
Feb. 1	209,678	June 30	63,704
Jan. 15	214,889	June 14	63,927
Jan. 1	188,850	May 31	50,908
1913—		May 15	50,294
Dec. 15	101,545	May 1	39,799
Dec. 1	57,234	April 15	57,498
Nov. 15	22,652	April 1 . .	57,988
Nov. 1	*1,842	Mar. 15	37,775
Oct. 15	*6,048	Mar. 1	31,381
Oct. 1	10,374	Feb. 15	22,183
Sep. 15	40,150	Feb. 1	37,260
Sep. 1	58,306	Jan. 15	28,459
Aug. 15	54,425	Jan. 1	17,053

* Net shortage.

COMMODITY PRICES.

"Bradstreet's index number for February marks the second decrease in commodity prices this year. It represents a falling off of two-tenths of one per cent from January 1st and is the lowest index number reported since October, 1911, being 8.861.

Compared with the index reported for the same period in 1913 it shows a decline of 6.2 per cent and a loss of one per cent from the same time in 1912. It is two per cent higher than Feb. 1911, and shows a gain over the same month in 1905, 1906 and 1908.

During the month more articles advanced than declined but some of the individual drops were of noteworthy proportions.

The following table gives "Bradstreets" index numbers (the totals of the prices per pound of ninety-six articles) since January 1, 1909:

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	8.263	9.231	8.836	8.949	9.493	8.885
Feb.	8.032	9.073	8.766	8.958	9.459	8.861
Mar.	8.217	9.111	8.603	8.902	9.405	
Apr.	8.316	9.200	8.522	9.098	9.297	
May	8.302	9.039	8.458	9.270	9.139	
June	8.396	8.911	8.529	9 102	9.072	
July	8.457	8.925	8.594	9.112	8.952	
Aug.	8.504	8.822	8.657	9.159	9.011	
Sep.	8.591	8.952	8.819	9.215	9.100	
Oct.	8.748	8.927	8.806	9.451	9.156	
Nov.	8.964	8.877	8.892	9.478	9.220	
Dec.	9.126	8.784	8.982	9.546	9.229	
Year	8.515	8.989	8.713	9.186	9.211	

OUR FOREIGN TRADE.

The Bureau of Foreign and Domestic Commerce reports the exports of merchandise for January and the seven months ended January as follows:

January:	1913.	1912.
Imports	$162,678,516	$143,557,721
Exports	227,020,645	202,586,074
Excess exports ..	64,342,129	59,028,853
Seven months:		
Imports	$1,096,052,845	$912,878,829
Exports	1,526,622,435	1,307,292,380
Excess exports...	430,569,590	394,413,451

	Imports.	Exports.	Excess exports.
1913.	$1,793,038,480	2,484,310,429	691,271,949
1912.	1,818,073,055	2,399,217,993	581,144,938
1911.	1,532,359,160	2,092,526,746	560,167,586

TOPICAL TALKS ON IRON.

XII. Railroad Consumption.

Our last topical talk traced the successive stages in which steel displaced wrought iron. Inasmuch as steel displaced another product, to an extent, it is important to distinguish between the growth in the use of the wrought product, and the growth in the use of steel in particular. By 1897 the supplanting was practically complete, having proceeded as far as it has even to this date, since a considerable quantity of wrought iron is still made.

Not only did steel supplant wrought iron; it has to an extent supplanted cast iron. Long ago there was a larger proportion of cast iron used than there is at present but no precise statements can be made as statistics are lacking. We cannot even speak with entire confidence of relations in recent years, for while there are complete statistics of the production of the different descriptions of pig iron used in the foundry, there are no statistics of the quantity of scrap used by the foundries, and it is known in a general way that large tonnages are so used. Taking 1897 as the time by which the proportion of wrought iron had practically ceased to decrease, the precise statement can be made that in that year the quantity of steel making pig iron produced was about 67 per cent of the total production, whereas in 1913, sixteen years later, the proportion was 78½ per cent. The actual tonnage of foundry iron has very considerably increased. It is frequently said that steel has been supplanting cast iron, and while it has been doing so to an extent, in certain directions, the tendency has not been universal. In the 16 years from 1897 to 1913 the production of pig iron slightly more than tripled, while the production of rolled steel slightly more than quadrupled. These statements must not be taken as indicating the general average rate of increase over longer periods of time; the rate of increase had been very slow from 1890 to 1897, while it was very rapid from 1897 to 1906.

With reference to the general distribution of steel the question most discussed at present is the proportion which the railroads take. Everybody has his positive opinion as to what the railroads are doing at the moment, and when they are going to buy more freely or less freely. There have probably been more erroneous guesses as to this feature of steel distribution than as to any other, for the reason that there are no accurate statistics as to railroad consumption of steel, such as there are with respect to other industries, while the subject is a particularly interesting one and therefore one in which "estimates" (i.e., guesses) are likely to be made.

It is undoubtedly the case that at one time the railroads took more than one-half of the total iron and steel consumed in the country, and it is likewise undoubtedly the case that in the past few years, since 1907, they have been taking a smaller proportion than ever before. What will occur in future remains to be seem, but there are some reasons for considering it not altogether improbable that the proportion of railroad material will at some time in the future begin to increase again. The amount of steel taken by the railroads is largely a question of financial conditions with respect to railroad securities, and this statement applies not alone to conditions in present years, but also to conditions in the relatively distant past. In the eighties railroad building was extremely heavy, the miles of new road built being much greater for a period of years than new mileage in the past quarter century. That was a question of financing, as history plainly proved by the great mass of receiverships a few years later. In other words, railroad securities were easily floated, and more railroad was built than the traffic would properly carry. Naturally the consumption of iron and steel by railroads was then extremely heavy. In 1887 the tonnage of rails produced was fully one-third as great as the total production of pig iron, whereas now it is a good rail year if the tonnage of rails is one-tenth the tonnage of pig iron.

During the depression of the nineties the proportion of railroad material fell quite low, and that was a financial rather than a physical development. The railroads needed more material, but could not finance the purchases. When their position became sound again they began buying very freely. This was partly the making up of lost time, but it was very largely a physical development in that methods changed. The steel

car proved its worth, involving a smaller proportion of dead load, and furnishing longer life and less repair cost. With the steel car came more powerful and heavier locomotives, and with the heavier rolling stock came the necessity of practically rebuilding the roads, strengthening or replacing bridges and removing old and light rails and replacing them with heavier rails. Suddenly instead of gradually the rails wore out, rails that had suffered little wear during many years yielding rapidly under the heavy burden. With the combination of heavy purchases of rolling stock and heavy rail replacement railroad consumption of steel mounted and comprised a large proportion of the total consumption in 1906, the year of largest proportion since the early days.

Thus there have been two great periods in railroad consumption of iron and steel, the first when railroad building was heaviest, and the second when railroad rebuilding was heaviest.

It is an interesting feature of railroad consumption of iron and steel that a larger proportion of the material comes back to the industry than is the case with any other large consumptive industry. Rails have lost relatively little of their original weight when they are replaced. Railroad bridges do not usually become very old, and practically the entire weight returns. Cars and locomotives return practically their entire weight. Thus the industry is required to mine less iron ore and make less pig iron, in the case of the railroads, than in the case of any other great line of consumption.

TROUBLES OF THE U. S. STEEL CORPORATION.

A prominent steel man is quoted by the "Wall Street Journal" as outlining the following developments, unfavorable to the Steel Trust that have occurred during the last five years:

"The Steel Corporation over the last two years has spent less money for construction of new mills, acquisitions of property, etc., than in any similar period since organization. This has been due largely to political attacks, legislation, etc.

"The Steel Corporation up to a year ago had been spending between $40,000,000 and $50,000,000 a year for new construction, but in 1912 its expenditures for this purpose were, less than $15,000,000. In 1913 the new construction outlay was also far below the average. United States Steel from the standpoint of gross business and men employed, is the largest corporation in the world. However, the market value of its stocks and bonds is somewhat below the aggregate market valuation of securities of the companies that once comprised Standard Oil Company of New Jersey.

"United States Steel has had more to contend with in legislation over the past five years than any other corporation. As the largest combination in existence, it has been made the target for attacks from every quarter, political and otherwise, and, one manufacturer says, the strength of the stock in the face of all this opposition has been remarkable.

"Developments unfavorable to the Steel Corporation over the last five years can be enumerated as follows:

"1. Suit of Government to dissolve the Corporation.

"2. Increase in taxes since organization from around $2,000,000 to close to $11,000,000.

"3. Cancellation of the Hill ore lease, which weakened the Corporation's standing in raw supplies.

"4. Forced abandonment of community of interest plan for maintaining reasonable prices.

"5. Shorter hours for workmen, which has added materially to expenses.

"6. Investigation recently started to determine whether the Corporation received rebates from the railroads.

"7. Increased wages, which have added between $30,000,000 and $40,000,000 to annual expenses.

"8. Tap line ruling, which may deprive the Steel Corporation of $7,000,000 of rev enue annually.

"9. Reduction in steel duties, which has made it difficult for United States Steel and other companies to advance prices to a reasonable level in competition with foreign mills.

"10. Death of J. P. Morgan, which removed one of the strongest pillars supporting United States Steel.

"11. Forced reduction of freight rates on ore carried by Steel Corporation's roads.

"12. New trust legislation, which may force radical changes in United States Steel Corporation's policy, even if the govern-

ment suit is decided in favor of United States Steel.

"13. Expenses of Corporation have been increased close to $7,000,000 annually through pensions, profit-sharing, sanitary and welfare work, etc.

"14. Delay in decision of Interstate Commerce Commission in increased freight rates, which has curtailed railroad buying of steel products.

"15. Depression of steel industry abroad, which has forced down prices and made it more difficult for the steel companies in this country to advance quotations.

"16. Charges of ill-treatment of employees, which resulted in an investigation by a committee headed by Stuyvesant Fish.

"There is no doubt that the small earnings of the Steel Corporation to-day are due to the above developments. United States Steel last year, on a production estimated as 13,500,000 tons, made less money than when it was producing something like 9,000,000 tons annually.

"The large amount of money the Steel Corporation has put into new construction, amounting to around $500,000,000, has benefitted shareholders less than consumers and wage-earners. The greater benefits have gone to employees and consumers in reduced prices. Over the last two or three years prices for steel have averaged $5 to $6 per ton below what they were up to 1907."

LOWER LABOR COSTS.

(From the Boston News Bureau.)

Some relief from the high cost of labor is at last in sight. Not a few of the failures and receiverships of the past two years have been directly traceable to the rapid increase in per capita wages, and in almost every industry the wage earner since 1907 has received practically the entire benefit of the growth of business—to the exclusion of those who risked their savings. It is, therefore, gratifying that the supply of labor is now redressing the balance.

Changes in labor supply are reflected by the immigration figures, and it is observed that after every period of prosperity, such as 1902-3, 1906 and 1912, the immigration movement continues long enough to over-supply the labor market. At such times there is a marked increase in the energy of the typical worker. This anxiety to hold his job against competition is well shown, among other ways, by the larger tonnage handled per capita of railroad employees:

Year.	Ton-miles per employee.	Nov. immigration.	Aver. daily exchanges.	Commercial failures.
1913....	.....	104,671	$536,338,200	$265,806,529
1912....	.....	94,739	576,725,400	203,117,391
1911....	149,300	61,765	533,622,000	191,061,665
1910....	150,100†	74,353	543,446,500	201,757,097
1909....	145,600	85,049	543,427,200	154,603,465
1908....	152,000	37,076	433,793,800	222,315,684
1907....	141,500	117,476	476,834,500	197,385,225
1906....	141,900†	94,621	527,760,400	119,201,515
1905....	134,900	61,374	475,078,300	102,676,172
1904....	134,700	71,037	334,501,700*	144,202,311
1903....	131,900	68,027	345,317,500*	155,444,185

*Fiscal years.

†These two increases in ton-miles per employee were due to booms in freight traffic.

During the fiscal year 1908, for example, in spite of the slump in freight traffic, the efficiency of labor was so much greater that the railroads were able to lay off large numbers of men and get more service from each man who remained. A part of the increase in traffic per man was no doubt due to the suspension of repair and construction work; but even the tonnage per capita of employees engaged solely in handling the traffic increased, and the indications of higher labor efficiency were unmistakable.

Both industrial and railroad concerns are now operating below capacity, and the reduced demand for labor, together with the extra large supply, seems bound to increase efficiency and reduce operating costs. But will the labor unions approve congressional efforts to restrict business still further?

ACCURACY IN BLAST FURNACE STATISTICS.

(From Iron Age, Feb. 26th.)

The Iron Age has published monthly blast-furnace statistics for a good many years. Previous to 1902 these took the form of monthly statements of the weekly capacity of furnaces in blast at the beginning of a month. For the past 12 years the statistics of coke and anthracite pig iron production have been printed each month, together with the capacity of furnaces in blast at the beginning of the new month.

Originally the mails were depended on for practically all the figures. Few companies had more than one or two furnaces, and many returns were belated. Rarely could the figures be published before the 10th of the month, and at times they were later. The consolidations, as they came on, simplified matters somewhat and the demand for early figures grew until it was not un-

common to print them on the fourth and fifth day of a month, and by using the wires freely it has been possible once or twice to give the statistics on the second day of the month. Naturally, with so much telegraphing, and with the estimates of the production of some furnaces which are inseparable from such speedy work, the chance of error has increased. But even so, this factor has been remarkably small—averaging, in fact, only one-thirtieth part of the 5 per cent which the eminent statistician, General Francis A. Walker, considered allowable in usable statistics—and our readers have had the benefit of the prompt information on the trend of production.

A question has been raised by a Cleveland iron and steel paper as to the relative accuracy of its blast furnace figures and those of The Iron Age. We are quite willing our readers should have the data with which to make a comparison. Below are our totals of coke and anthracite iron by years, placed alongside those of the American Iron and Steel Association, for the seven years in which the Iron Trade Review has been collecting similar statistics:

	American I. & S. Assn.	Iron Age.	Deviation tons	%
1907 ..	25,343,964	25,312,703	31,261	0.123
1908 ..	15,686,872	15,641,537	45,335	0.291
1909 ..	25,419,468	25,410,463	9,005	0.035
1910 ..	26,907,060	26,855,511	51,549	0.191
1911 ..	23,370,871	23,311,711	59,160	0.253
1912 ..	29,379,912*	29,383,490	3,578	0.012
1913 ..	30,626,320*	30,724,581	98,261	0.32

Average deviation for the seven years, 42,593 tons.

Average per cent deviation, 0.168.

The coke and anthracite production, as shown by our Cleveland contemporary's figures for the same years is given below with its deviations from the American Iron and Steel Association's figures:

	American I. & S. Assn.	Cleveland. figures	Deviation tons.	%
1907 ..	25,343,964	25,119,157	224,807	0.89
1908 ..	15,686,872	15,854,573	167,701	1.07
1909 ..	25,419,468	25,337,002	82,466	0.325
1910 ..	26,907,060	26,845,314	61,746	0.229
1911 ..	23,370,871	23,198,601	172,270	0.737
1912 ..	29,379,912*	29,325,513	54,399	0.185
1913 ..	30,626,320*	30,652,767	26,447	0.086

Average deviation for the seven years, 112,691 tons.

Average per cent deviation, 0.447.

* American Iron and Steel Institute.

We have had some difficulty in making this last compilation, due to the fact that for many of the months two sets of figures were given—one published soon after the close of the month, with a second attempt a month later. For instance, in early March, 1908, the figure given by the Cleveland paper for February output was 1,233,074 tons. In early April, when it made a comparison between the February and March figures, the former had shrunk to 1,086,809, a trifling difference of 146,265 tons, or 13.5 per cent.

Taking the entire showing for the seven years, The Iron Age has had an average deviation from the official figures, which require four to six weeks for their collection each year, of one-sixth of one per cent. The average deviation of the Cleveland figures has been nearly one-half of one per cent, or about three times as much. By tons, the average deviations have been 42,593 and 112,691 respectively.

In this connection we shall not overlook a suppression of fact concerning The Iron Age's blast furnace figures of January 1st. It was distinctly pointed out in footnotes to our table of furnaces in blast on that date that of the 212 so counted 18 were "banked"—12 in the Pittsburgh district, 3 in the Chicago district and 3 in northern Ohio. In addition, 3 in the Mahoning Valley were banked, that were not included in the footnote references. The Cleveland paper, in commenting on these statistics, misrepresents them by omitting the material fact stated above. The 18 furnaces shown in our table as "banked" were not blown out, as stated in the "million-idle-men" sensation published at Cleveland; in fact, half of them had actually resumed before that article was printed. But the misrepresentation of The Iron Age's figures is perhaps not surprising in view of the ability of the weekly and daily editions of the Cleveland paper to make directly opposite statements concerning iron market conditions on the same day. On January 15 the Daily Iron Trade wired to Representative Humphrey this statement which was used by him on the floor of the House at Washington in a denial of iron trade improvement and an attack on confidence:

"Steel condition continues to grow worse. Connellsville, Pa. district coke workers' wages are being reduced 10 per cent and 2,100 coke ovens closed down this week for

indefinite period."

The weekly edition of the same paper, whose market reports are gathered by the same staff, had on the same day, January 15, these statements prominently displayed:

"Improvement in the iron trade is extending. . . . That the recent improvement in the iron trade is not merely sentimental, but rests upon a solid foundation, is being shown from day to day as new business expands and prices become less irregular. . . . Optimism, which has been a dominant characteristic of the Western iron and steel makets for the past three weeks, now has a more substantial reason for its existence. Broadly speaking, more tonnage was booked between January 6th and January 13th than during any other week in the past four months. . . .

Subsidiary companies of the Steel Corporation have increased outputs this week."

It is scarcely appropriate to discuss "accuracy" in connection with the above extracts. They tell their own story of the level that can be reached when iron market information becomes the pawn of politics.

THE ALUMINUM INDUSTRY.

(From the Mining & Scientific Press.)

Not many years have passed since, following the discovery of a process by which aluminum can be produced from its ore comparatively cheaply, the columns of the pseudo-technical journals were filled with articles describing aluminum as the metal of the future and predicting that, because of its strength as compared with its weight it was destined to displace many of the metals now in general industrial use. The claims made by irresponsible people were so extravagant and absurd that the general public soon came to realize that they could never be attained, and consequently discounted every statement made concerning aluminum. As a result the metal, from enjoying high regard, fell almost into disrepute and public interest in it declined. But as a matter of fact, the general features of the statements first made are essentially correct, minor factors having intervened to prevent them from being realized as quickly as expected. Though the cost of the metal was greatly decreased, it was not reduced to a point where the sum total of advantages plus cost was sufficient to cause manufacturers to change their practice, which, in many cases would have necessitated 'scrapping' valuable machinery and abandoning the manufacture of products for which a reputation had been built up through many years of work.

Other factors than mere cost must always be considered. Thus as a conductor for electricity, aluminum at 20 cents per pound is on a par, from the standpoint of cost, with copper at 12 to 13 cents. During 1912 aluminum ranged between 18 and 26 cents per pound while copper ranged between 14 and 17½; in other words, sometimes copper was the cheaper and sometimes aluminum, but the latter showed a range of 8 cents against 3½ for the former. The manufacturer and consumer of electrical conductors, therefore, had comparatively little incentive to commit themselves to the use of aluminum, the more so as the supply of the metal was comparatively limited and a few large purchases might send it skyrocketing. This is not all the story, however, for aluminum is comparatively weak in its tensile strength, while the larger cross-section of the equivalent conductor made the wind load and ice and snow load on wires much greater than is the case with copper. To support the wires would require more poles or towers, and what was saved at one pocket was lost out of the other. This difficulty has now been overcome by the use of a composite cable of several aluminum wires about a steel wire, and the transmission line of the Los Angeles power project uses such a cable for its 275 miles of length. There is another difficulty: aluminum, in spite of the early claims made for it, is much more subject to corrosion than is copper, and the same is true of steel. We understand that a means has at last been found of overcoming this drawback, and that henceforth the item of relative cost will practically be the determining one. Assuming that 14 to 15 cents is the normal price for copper, it seems probable that aluminum will henceforth be a keen competitor with it when selling for 20 cents per pound.

It must not be assumed from this that increase in the output of aluminum will be followed by a corresponding decrease in the consumption of copper, for there is almost an infinite variety of uses for aluminum which can absorb much greater stocks of the metal. Its use in the manufacture of

cooking utensils, competing with enameled ironware, is known to everyone, and the consumption in this way will certainly increase greatly when the selling price of the finished article is brought closer to the cost of the metal, and the latter is also reduced. In this case its use for the larger-scale cooking utensils employed by the makers of preserved food, liquors, and the various products of chemical engineering is also likely to increase. Another large field is in the manufacture of automobiles, aeroplanes, and other machinery where lightness combined with strength is advantageous. A large increase in the supply, together with a steady moderate selling price is likely to greatly increase consumption in this field. Another field, yet unexploited, is the use of the metal for interiors, supplanting woodwork. In the modern business office almost the only articles still made of wood are the desks and chairs, and it is quite possible that these will soon be supplanted by metal, yielding to the demand for fireproof construction. Painted sheet steel is now the favorite material for all metal construction, but unpainted aluminum would be much more satisfactory from the standpoint of illumination, since it quickly acquires a gray 'mat' surface which diffuses light without creating a glare. The cost of aluminum is now too high to compete with steel in this way, but what the future position of the two will be must be left for the future to show.

Much aluminum is used in ways which are not impressive but which consume a large amount of the metal. Aluminum 'novelties' have become so common that they have lost their novelty, but have proved so convenient that their use is likely to increase rather than decrease. Aluminum foil is now being used, displacing, to some degree, the tinfoil so familiar to our fathers as the containers for 'fine-cut chewin'' and to our sons as the wrappers for expensive cigars. The powdered metal, known as aluminum bronze powder, is used in painting, lithographing, printing, and as a constituent of explosives and a patented source of heat. The early difficulties in working the metal have now been largely overcome, and the manufacture of aluminum tubing, for example, is rapidly increasing. It is not remarkable, therefore, that the consumption in this country increased from 46,000,000 pounds in 1911 to 65,000,000 in 1912, coincidentally with a steady increase in the price from 18 cents in January 1912 to 26 cents in December. It is important to note, however, that even this amount was only 7½ per cent of the copper consumption during the same period.

No review of the outlook for aluminum would be complete without some reference to the sources of the supply of the metal. The Aluminum Industry Akteen Gesellschaft is the largest producer, its plants in Switzerland Germany, and Austria having a capacity of 32,000,000 pounds per year. This is closely followed by the Aluminum Company of America, with plants at Niagara Falls and Massena, New York. The British Aluminum Company, with two plants in Scotland, is a good third, and there are numerous other plants in France, Germany, Switzerland, Norway, and Italy, which contribute to the total output. The Northern Aluminum Company at Shawenegan Falls, Canada, is the only other plant now producing the metal on the North American continent. However, the Southern Aluminum Company has under construction near Whitney, North Carolina, a plant which will nearly double the present American output when it is in operation. The power supply is to be obtained from Yadkin river, and the technical work is under the direction of French metallurgists. The Aluminum Company of America is also building a new plant at Marysville, Tennessee, and is said to have contracted for 20,000 electrical horsepower from January 1st. However, the power company found it necessary to rebuild the dam and these two plants in the south are both likely to begin operations toward the end of the year. Perhaps the most important effect of this will be to give to manufacturers more than one domestic source of supply, and manufacturers who have heretofore been deterred by this fact from committing themselves to the use of a product in which there is now no open market will be encouraged to begin or increase their use of aluminum. The tremendous increase thus made in the domestic output of aluminum is certain to have a marked effect on the uses and applications of the metal, and it will be interesting to observe whether the increased consumption will take care of the increased yield, or whether a recession in the price will be the result.

THE IRON ORE RESERVES OF THE WORLD.

By C. K. Leith (University of Wisconsin) in "Mining and Engineering World."

The most recent and comprehensive estimates of the world's iron ore reserves are those made for the International Geological Congress in Sweden in 1910. Geologists and mining engineers from many countries compiled these figures and described briefly the geology of the ores. An actual reserve of 28,408 million and a potential reserve of 123,377 million tons was accounted for, distributed as follows:

Country.	Actual reserves.*	Potential reserves.*
France	3,300	....
Sweden	1,158	178
Germany	3,607	Considerable
Great Britain	1,300	37,700
Spain	711	Considerable
Russia	864	1,056
Total Europe	12,032	41,029
Lake Superior Hematites	3,500	72,000
Clinton Red Hematites, Southeastern U. S.	505	1,368
Total United States..	4,578	74,566
Brazil	1,976	Enormous
Cuba	2,000	1,000
Total North and South America	9,855	81,822
Australia	136	69
Asia	260	457
Africa	125	Many thousands
Total for the world	22,408	123,377

*In million tons.

The reserves include grades in some cases as low as 25% metallic iron, and in other cases not below 50% in iron. They include ore deposits now being mined, deposits about to be opened for mining, and deposits so situated that they will be used only in the distant future. They include ores of widely varying availability under present economic conditions and ores not available at present. It is obvious, therefore, that the estimates require careful analysis to bring out the proportions of ore at present available to total ore, and that in the absence of such analysis a comparison of the ore reserves of different countries by totals is likely to be misleading. In recognition of this fact an international committee is at present engaged in classifying and revising the estimates to determine the value and availability of the various reserves, and thus to develop a sound basis for comparison of reserves of different parts of the world. Until this committee reports the subject may be discussed only in general terms, with a view to bringing out certain facts and principles necessary to a proper understanding of the situation in regard to iron ore reserves.

Rate of Consumption.

The average rate of consumption for the world in recent years has been about 125 million tons per year. At this rate the proved ore reserves enumerated above would last about 180 years. If it be assumed that the consumption in the future will increase at about the same rate as it has in the past, the total actual reserve above reported would still last about a century. But this calculation of life is based only on the actual reserves reported. When potential reserves are included the life is greatly increased. Nor is this all. Beyond the total reported (both actual and potential) there are known additional quantities of lower grade ores, at present not commercially available, which will be available in the future, to say nothing of future discoveries of ores of all grades in unexplored territories. Both geological inference and the history of iron ore exploration seem to make such future discoveries practically certain. Iron ore constitutes about 4% of the earth's shell, and it shows all stages of concentration up to 70%. Only those rocks are called "iron ores" which have a sufficiently high percentage of iron to be adapted to present processes for the extraction of iron. When economic conditions demand it, it may be assumed that iron-bearing rocks not now ordinarily regarded as ore may be used to commercial advantage, and therefore may become ore. Not only is an indefinitely long life assured for ore reserves as a whole, but the same is true of many of the principal groups of deposits.

The question of practical concern, therefore, is not one of total iron ore reserve, but one of relative degrees of availability to markets which focus our requirements of iron. The annual production of ore from a given district is roughly a measure

of its ability to meet the competitive market, and, therefore, of its actual immediate or past availability. Annual production is the net result of the interaction of all of the factors bearing on availability.

Availability Measured by Production.

It may be argued that there are ores known and not yet mined which are also immediately available. On the whole they seem to be less available than ores actually being produced, otherwise general economic pressure would require their use and actual production. It is improbable that important reserves would be deliberately held out of the market if they were equally as available as those being shipped. There is usually some factor which has rendered them, all things considered, less immediately available than the ores actually mined and shipped.

The iron ore production for 1909, 1910 and 1911 averaged for the principal producing countries as follows:

United States	50 million tons
Germany	27 million tons
United Kingdom	15 million tons
France	14 million tons
Spain	8 million tons
Sweden	5 million tons

A comparison of the rank of the different districts in this table showing total reserve gives a fair idea of the remarkable difference in present availability of the various reserves.

Future Availability Forecasted From Present Production.

It is difficult to discriminate between actual present availability and future availability. The term suggests both the present and the future to the mind, as do also the words "ore reserves." Looking to future availability, it is obvious that tables of production afford only a partial basis for prediction. Presumably districts which have produced largely in the past may be expected to continue as important factors. Production has demonstrated availability in these cases. Continued heavy production may be expected from the Lake Superior region, for instance, the Clinton hematites of Alabama, the ores of the Franco-German boundary, the Bilbao ores of Spain, the Cleveland ores of England, and the high-grade magnetites of northern Sweden.

Also recent increases in production from certain districts are probably significant of increased use of such ores in the future. Such are the increasing importation of Swedish ores into England and Germany and the increasing use of Clinton hematites in the United States and Adirondack magnetites. Low-grade ores from the great reserves of Cuba are being brought to the east coast of the United States in increasing amounts, and it is highly probable that they will take a larger share of the market. In none of these cases will production be limited in the near future by ore reserves.

Influence of Cost.

On the commercial horizon are ores of new districts, the availability of which cannot be read from tables of production. Their availability must be determined by analysis and measurement of the factors entering into availability. Availability of iron ore is determined by percentage of iron, percentage of impurities, percentage of advantageous or deleterious minor constituents, physical texture, conditions for profitable mining, adaptability to present furnace practice, distance from consuming centers, conditions and costs of transportation, geographical and transportational relation to coal necessary for smelting, trade relations, tariffs and taxes, inertia of invested capital, smelting, and other considerations. All these factors are variable. A comparison on the basis of any one of them or any two of them is likely to be misleading. A comparison based on the quantitative consideration of each of the several factors seems to be made practically impossible by the difficulty of ascertaining accurately the quantitative importance and range of each factor, and the difficulty of integrating all the factors even if they should be determined. However, their combined effect is expressed in cost of bringing the product to market, and comparison of costs furnishes a means of comparing availability of ores. A high-grade ore, cheaply mined and favorably situated with reference to the points of demand, will command a relatively high price. The same ore so situated that its transportation costs are higher will command a lower price, or it may be so situated that the costs of mining and bringing it to places where it can be used are so high that there is no profit in the operation. There are known high-grade ores which because of cost are not available under present conditions.

The availability of an ore, then, depends

on its relation to a market—whether after meeting cost of transportation it can be sold at prevailing market prices at the consuming centers and still leave a fair margin of profit for the mining operation. The price equilibrium between such centers affords a reasonably uniform basis on which to measure availability of ores.

Figures of cost are available as a basis for comparison of availability of ores of certain of the districts, but not enough for comparison of all districts. Careful study of costs has demonstrated the availability in the near future of the Brazilian high-grade Bessemer hematites, and projects now under way for exportation to England and the United States will doubtless make this enormous reserve play an important factor in the iron industry. There is a similar project for the exportation of Chilean ores to the United States. Ore is known but not yet mined in many parts of the western United States and western Canada. With the increasing population along the west coast of North America projects for smelting the ore there are becoming more definite. Establishment of smelters on the west coast will make available a large reserve of ore.

The list of changes now taking place or highly probable for the near future might be greatly enlarged. The use of iron and steel is rapidly extending through populous parts of the world which have heretofore demanded little of these products. This is favoring the development of local centers of smelting which will make available other large reserves. The growth of smelting in India and China illustrates this tendency.

Sufficiency of Supply.

Iron ore reserves are so large, so varied and so widely distributed over the globe that they will supply demands upon them to the remote future. Reserves become available and valuable only by the expenditure of effort and money. Ores are the multiplicand and man the multiplier in the product representing value or availability. Iron ore can be made available, when needed, almost to any extent, but at highly varying cost and effort. The highest grade ores, requiring minimum expenditure to make them available, are distinctly limited as compared to total reserves. Any waste in their utilization will lead more quickly to the use of less available ores at higher cost. One of the significant consequences of the exhaustion of the highest grade reserves will lie in increased draft upon fuel resources necessary for the smelting of the lower grade ores. Availability is limited not by total reserves, but by economic conditions.

THE USE OF PULVERIZED COAL IN METALLURGICAL FURNACES.

By James Lord*

About ten years ago, the American Iron & Steel Manufacturing Co., noting the use of pulverized coal in the large furnaces of the cement industry, commenced the experimental use of this fuel in metallurgical furnaces.

From the first it was apparent that its economical use depended upon the absolute control of the feed by the burner. This having been accomplished, we have applied it to over one hundred furnaces of various types, such as those for puddling and heating, and of smaller sizes for reheating nut, bolt, and spike bars.

It has proved to be a commercial success for all the above purposes, and the experience of ourselves, and others working along similar lines, show that it can be used with equal economy for basic open hearth steel furnaces, either with or without checker work.

Our experience in the use of this fuel over a number of years has been so satisfactory and so economical that we are now largely increasing our installation, and are about to apply it to open hearth steel furnaces.

Success in the use of this fuel requires:

First—That both the free and combined moisture be expelled by artificial heat, down to 0.5 per cent.

Second—That it be pulverized so that 95

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*President, American Iron & Steel Manufacturing Company, Lebanon, Pa.

per cent. will pass through a sieve of one hundred meshes to the square inch, over 80 per cent. that we pulverize will pass through a two hundred mesh sieve.

Third—The delivery to the furnace must be controlled by the burner so that the proper feed may be secured. We have burners using only 40 pounds per hour, others over 900 pounds.

Fourth—For the purposes stated above, metallurgical furnaces, the coal should have a high volatile content, not less than 30 per cent.

The coal we are now using analyzes,

Volatile	33.20
Mixed Carbon	56.07
Moisture	1.12
Ash	9.61

The sulphur should not exceed 1%.

In the puddling and heating furnaces, the firing grates formerly used for lump coal, serve as combustion chambers for pulverized coal, and collect a large portion of the ash. The combustion chamber in the heating furnaces, holding about six tons of iron piles, is about five feet from back to bridge wall. Some is collected at base of stack, and some, in impalpable fineness, passes through the stack. That which falls upon the material in furnace is too small a percentage to unfavorably affect it. In one of our plants, located near a residential section, we have suction fans in the stacks to collect the ash.

Our equipment for preparation of pulverized coal at our Lebanon plant is as follows:

The slack coal is conveyed automatically from the car to the pile, then taken by screw conveyors to the dryers, and in the same manner from the dryers to the pulverizers. When ready for use it is similarly conveyed throughout the works, in some cases a third of a mile. It is not touched by hand or shovel from the freight car to the furnace. Using slack coal we do not require a crusher. The dryers are made by several manufacturers. The pulverizers are of two types, the horizontal tube mill and the upright mill. They are practically equal in efficiency, each machine delivering about 4 to 4½ tons per hour. These mills are made by a number of manufacturers.

As the coal leaves the pulverizing plant it is weighed on a large automatic scale. The heating and puddling furnaces have each a small automatic scale, and the total of the small scales is checked up each day with the record of the large one.

At the end of each line there should be an overflow pipe, see Fig. 5, to prevent the coal from choking up the screw, if anything should happen to the cross lines. Otherwise, should the coal overflow near an open fire it will burn back very quickly.

Attached to each of our furnaces is a tank or hopper of size to carry about fifteen hours' supply of pulverized coal. On several occasions the fuel has ignited in these tanks, usually on Monday mornings when the left over fuel has accumulated moisture. In such cases it is only necessary to stop the supply, and to feed the burning coal into the furnaces until tank is empty. There is no danger of explosion under these conditions. Indeed, during our entire experience with this fuel, we have had no explosions. These occur from coal in suspension in a room coming in contact with flame. The same result would follow filling a room with wheat flour in suspension. Proper attention to the pulverizing plants and machinery will eliminate this possible danger.

It is not good practice to have the dryer in the coal pulverizing house, for the reason that if an accident should occur causing the coal to overflow, it might be drawn into the fire chamber of the dryer causing fires, with possible injury to employees.

The fuel should be delivered to puddling and heating furnaces at a low air pressure. We use four to six ounces of blast to blow the coal through a small pipe from the burner to the large blast pipe, which in a heating furnace is from 10 in. to 14 in. diameter. This large pipe conveys it to the furnace with a pressure of about one ounce, or less, per square inch. If these pressures are observed the roof and side walls of a furnace heating wrought iron for rolling will last four or five months, when running double turn six days per week.

As to economy of fuel, I show the actual results in our Central Works during the months of April and May, 1913.

Puddling Furnaces.

The figures show the quantity of fuel necessary to produce one ton of puddled bar, made from grey forge pig iron, the product during these months was for high grade bar requiring special work and time.

	April	May
No. 23 furnace	1362	1318
24 furnace	1169	1277
25 furnace	1271	1472
26 furnace	1371	1362

The average during same months on a lower grade of pig and cast scrap was 1239 pounds.

Our 1912 records show cost of preparing pulverized coal as follows:

	Rate per gross ton of coal produced. Cents
Fuel	0.034
Repairs to Buildings	0.002
Operating	0.145
Power (Steam and Electric)	0.221
Repairs to Machinery and Equipment	0.200
Total	0.602

This total includes the cost of automatic transmission through pipes to the furnaces.

Analyzing the last expense item, we find repairs which should be charged over the past eight years, so that total cost of preparation and transmission did not properly exceed 50c. per ton of pulverized coal produced during 1912.

If we separate the transmission from the actual preparation, the cost of the latter would be less than 40c. Many plants would not require the extensive transmission required by us. When the coal is prepared as herein outlined, smoke is practically eliminated. If the stacks show black smoke, it would show a wasteful use of the fuel to the detriment of the operator's interest, and it is at once corrected.

Heating Furnaces.

In heating iron piles for rolling we have the following results during the same months:

Name of Mill	April	May
12 in. Central	516	528
12 in. West	544	570
16 in. Central	519	523

The figures show the amount of fuel consumed to produce a gross ton of rolled bars. On steel billets the amount would be one-third less.

DISCUSSION.

William A. Evans, New England Manager, Girscom-Russell Company, Boston, Mass. (abstract):

Method of feeding the fuel: There are probably as many patents on record in the United States patent office of powdered fuel burners as there are of non-refillable bottles. Many have taken a whack at it, and I believe that most any engineer can design a successful piece of apparatus after knowing the requirements.

To put it in the words of another: "Any mechanism which will give a uniform mixture of coal and air with both under control can be used for feeding powdered coal."

Burners are usually made up of a screw conveyor of variable speed which drops the coal into a blast of air. One thing to be guarded against is powdered coal flushing. It almost seeks its own level as water. It will sometimes run along a screw conveyor so as to get ahead of the latter. For this reason the screw is usually made very long so as to introduce enough friction to keep back the flush of coal.

There is one very successful burner in which no mechanism whatever is used, everything depending upon the blowing of air through a pocket of powdered coal. This air picks up enough of the powder in its passage through it to provide for combustion. It is my opinion, however, that this apparatus would have a limited capacity.

Some of the failures that have been experienced with burners have been due to the introduction of air into the furnace either by induced draft or by a blast separate from the introduction of the coal. The two must be mixed thoroughly before entering. Of course, it is possible to add a little air for oxidizing purposes, but good combustion should first be insured by a good mixture of the fuel and air at entrance.

The burner must be so designed as to be free from pockets or storage space, and must be out of the influence of the heat of the furnace. Heat will cause coke to form and interrupt the operation.

One point of powdered fuel burner to be remembered is the air pressure used. There has been a gradual reduction from air at 20 lb. on cement furnaces of early days down to as low as one-half an ounce on metallurgical furnaces. This drop in pressure has been due to the destructive effect of the heavy air blast and powder against the brick work. Where low pressure is used it can only apply very close to the furnace, for at least a four-ounce pressure is necessary to carry the fuel effectually through any length of pipe.

Ash trouble in furnaces and in checker work: As indicated under the head of grades of coal, ash is liable to give considerable trouble. This may occur in the combustion chamber, on the hearth, or in the flues. Slag formed is very difficult to handle. In the combustion chamber it can be provided for by the use of a bed of cinders, which will remain loose and can be pried out. On the hearth of a reverberatory furnace the ash forms a slag which can be drawn off with other impurities. In the flues, control of the heat should be such as to keep the temperature so low as to prevent the forming of slag. In any case, frequent and easy access should be given for cleaning.

I consider checker work entirely unsuited to the use of powdered coal. It will slag up and become inoperative.

Effects of use of powdered coal on the life of furnaces: Powdered coal is very destructive. This is because of concentrated heat of blow pipe tendency, wearing effect due to the impinging of the coal, and tendency of the ash and brick to flux together. These objections are somewhat overcome by the use of low pressure air introducing the coal at a very slow velocity, spreading the flame over as large an area as possible, the use of brick having similar chemical tendencies with the ash, and cooling of the brick work by water circulation. Much has to be learned in the design of furnaces for this fuel. Where the fuel blows against the bridge wall the latter requires repairing every four or six weeks. The roof stands somewhat longer. Better results in the bridge wall have been obtained by circulation of water, but there is still chance for improvement.

H. R. Barnhurst, Engineer, Fuller Engineering Company, Allentown, Pa. (abstract):

The burning of coal in pulverized form has long since passed from the experimental stage to that of practical use. The question today is how far this usefulness is capable of being extended and amplified. All the known coals will burn in this form. Those with low volatile components require furnaces of special construction to fulfil requirements of which I will speak later.

Pulverized coal may be burned by either of two methods. The first of these may be called the long flame method. This is a progressive burning of the coal and is used where the character of the work and form of furnace demands that the flame shall be elongated so that the ultimate burning may be well within the chamber to the end that the heat may be developed in close proximity to the work done and not conveyed by gases from the initial point of firing.

This is accomplished by projecting the primary air, which carries the fuel, into the furnace with high velocity. In this method the air of projection would be less than 25 per cent. of that ultimately required. Additional air must therefore enter from other sources to supply that which is necessary. This additional air may or may not be preheated in order to assist combustion. If preheated by appropriation of waste heat, considerable saving in fuel may be effected. It has been estimated that approximately four B. t. u. per degree of preheating is saved per pound of fuel fired when 50 per cent. excess air is admitted.

Fired as described with a high jet velocity, complete combustion can only be effected upon the outside of the cloud of fuel entering the furnace. The inside of this cloud is the fuel with less air mixed with it than is necessary to burn it. This forms a more or less elongated cone with its base the pipe of entrance, burning on its surface as it is rapidly shot forward with greater or less rapidity. This action is affected also by the greater or less intensity of the chimney draft. The action is somewhat similar to the burning of a candle where the gases evolved from the hydro-carbons fed by the wick burn upon the surface of the gas body as oxygen obtains access to it. I have some doubts, however, as to the genuineness of the claim that this jet of entering fuel as described can be effectively projected beyond a limited distance in any particular direction. With the rapidly expanding air without and within the jet, and its corresponding reduction in specific gravity, coupled with the swirls and eddies of currents of varying velocities it seems to me that little actual control can be had. This air at high velocity should however not be directed against the furnace walls. It then is a large and active blow pipe. Confine impingement to the charge. Avoid

COMPARISON OF METAL PRICES.

Pig Iron.	Range for 1912. High.	Low.	Range for 1913. High.	Low.	Range for 1914. High.	Low.	Closing Feb. 28th.
Bessemer, valley	17.25	14.00	17.25	14.25	14.25	14.00	14.25
Basic, valley	16.50	12.25	16.50	12.50	13.25	12.50	13.25
No. 2 foundry, valley	18.00	13.00	17.50	13.00	13.25	13.00	13.25
No. 2X foundry, Philadelphia	18.50	14.75	18.50	14.50	15.00	14.50	15.00
No. 2 foundry, Cleveland	17.75	13.25	17.75	13.50	13.75	13.25	13.75
No. 2X foundry, Buffalo	17.25	13.50	18.00	13.00	13.25	12.50	13.25
No. 2 foundry, Chicago	18.00	14.50	18.00	14.00	14.75	14.00	14.75
No. 2 Southern, Birmingham	14.00	9.75	14.00	10.50	10.75	10.50	10.75
Scrap Iron and Steel.							
Melting steel, Pittsburgh	16.25	12.50	15.00	10.75	12.00	11.00	11.75
Heavy melting steel, Chicago	14.00	10.75	13.25	9.00	11.00	9.00	10.75
No. 1 R.R. wrought, Pittsburgh	16.25	13.00	15.75	11.50	12.75	11.50	12.75
No. 1 cast, Pittsburgh	15.25	12.35	15.00	11.50	12.25	11.50	12.25
Heavy steel scrap, Philadelphia	17.00	11.75	14.75	9.75	11.25	9.75	11.25
Iron and Steel Products.							
Bessemer rails, mill	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Iron bars, Pittsburgh	1.65	1.25	1.65	1.35	1.35	1.35	1.35
Iron bars, Philadelphia	1.67½	1.22	1.67½	1.22½	1.37½	1.22½	1.27½
Steel bars, Pittsburgh	1.40	1.10	1.40	1.20	1.20	1.15	1.20
Tank plates, Pittsburgh	1.50	1.10	1.50	1.20	1.20	1.15	1.20
Structural shapes, Pittsburgh	1.50	1.10	1.50	1.20	1.25	1.20	1.25
Grooved steel skelp, Pittsburgh	1.45	1.15	1.45	1.15	1.20	1.15	1.20
Black sheets, Pittsburgh	2.25	1.80	2.35	1.80	1.95	1.80	1.95
Galvanized sheets, Pittsburgh	3.40	2.80	3.50	2.80	2.95	2.80	2.95
Tin plate, Pittsburgh	3.60	3.30	3.60	3.40	3.40	3.40	3.40
Cut nails, Pittsburgh	1.70	1.50	1.70	1.60	1.60	1.60	1.60
Wire nails, Pittsburgh	1.75	1.55	1.80	1.50	1.60	1.50	1.60
Steel pipe, Pittsburgh	79%	81%	79%	80%	79½%	80%	79½%
Connellsville Coke at ovens.							
Prompt furnace	4.25	1.80	4.25	1.75	2.00	1.80	2.00
Prompt foundry	4.50	1.90	4.50	2.40	2.50	2.50	2.50
Metals—New York.							
Straits tin	51.05	42.05	50.70	36.75	41.12½	36.45	38.00
Lake copper	17.80	14.15	17.00	14.50	15.50	14.50	14.81¼
Electrolytic copper	17.75	13.95	16.87½	14.12½	14.87½	14.12½	14.45
Casting copper	17.65	13.75	16.62½	13.87½	14.65	14.00	14.30
Sheet copper	23.00	19.00	22.00	19.75	20.25	20.00	20.00
Lead (Trust price)	5.10	4.00	4.75	4.00	4.15	4.00	4.00
Spelter	7.65	6.45	5.65	5.10	5.50	5.25	5.40
Cooksons antimony	10.50	7.12	9.00	7.25	7.37½	7.20	7.25
Aluminum 98-99%	28.00	18.50	27.12½	18.50	19.00	18.50	18.62½
Silver	64⅛	54⅛	62⅜	56⅛	58.00	57⅛	57⅝
St. Louis.							
Lead	5.02½	3.90	4.72½	3.85	4.10	3.85	3.85
Spelter	7.50	6.25	5.85	4.95	5.35	5.10	5.22½
Sheet zinc (f.o.b. smelter)	9.00	8.00	9.00	7.00	7.50	7.25	7.25
London.	£	£	£	£	£	£	£
Standard tin, prompts	200	183¾	232	166½	188	165½	173¼
Standard copper, prompts	80⅛	60⅞	77	61¾	66¾	62½	64¼
Lead	23¾	15⅞	21¼	15⅞	20⅜	18¼	19⅞
Spelter	27⅛	25	26¼	20¼	21⅝	21⅜	21⅜
Silver	29⅛	25⅞	29⅝	25⅛	26¾	26⅛	26⅝

COMPARISON OF SECURITY PRICES.

Railroads.	Range for 1912. High.	Low.	Range for 1913. High.	Low.	Range for 1914. High.	Low.	Closing. Feb. 28th.
Atchison Top. & Santa Fe....	111¾	103¼	106⅛	90¾	100⅜	93⅛	97⅛
Atch. Top. & Santa Fe, pfd.	104¼	101⅜	102¼	96	101⅜	97½	101⅛
Baltimore & Ohio	111⅜	101⅝	106⅜	90⅜	98⅜	88½	92
Canadian Pacific	283	226½	266¾	204	220½	206¼	210¾
Chesapeake & Ohio	85¼	68¼	80	57⅛	68	59¼	62⅜
Chicago, Mil. & St. Paul	117⅝	99⅜	116¼	96¾	107⅝	99⅛	108⅜
Erie R. R.	39⅛	30	32½	20¼	32½	27¼	30
Great Northern, pfd.	143¾	126	132⅜	115½	134¾	125¼	127¾
Lehigh Valley	185⅝	155⅞	168⅜	141¼	156¼	148	150
Louisville & Nashville	170	138	142¼	126¼	141⅞	133⅝	138⅛
Missouri, Kansas & Texas ...	31⅝	25½	29⅛	18⅛	24	17½	19⅛
Missouri Pacific	47¾	35	42⅜	21¼	30	23½	25⅜
New York Central	121½	106⅛	109¾	90⅜	96⅝	88⅛	90⅞
N. Y., N. H. & Hartford ...	142¼	126	129⅞	65⅝	78	66⅛	67⅜
Northern Pacific	131½	115⅜	122⅜	101¾	118½	109	112¼
Pennsylvania R. R.	186¼	119⅞	123¾	106	115½	108⅝	111½
Reading	179¼	148⅛	171¾	151⅛	172¼	164¼	165⅝
Rock Island	30½	22⅛	24⅞	11⅝	16⅝	4¼	5⅛
Southern Pacific	115½	103½	110	83	99½	88⅛	94¼
Union Pacific	176¾	150¾	162¾	137¾	164⅜	153½	162½
Wabash	9½	3¾	6	2	4⅝	1⅜	2½
Industrials.							
Amalgamated Copper	92¾	60	80½	61	78⅛	70⅞	54
Am. Beet Sugar	77	46½	50½	19¾	28½	22½	23
American Can	47⅜	11¼	46⅞	21	35⅛	28¾	30⅛
American Can pfd.	126¼	90⅜	129½	80½	96	89	92⅛
Am. Car & Foundry	63⅝	49⅜	56⅜	36½	53½	44⅛	50¼
Am. Cotton Oil	60¾	45½	57⅜	33½	46½	37½	44⅝
Am. Locomotive	47½	31¾	44½	27	37¼	31⅝	34¾
Am. Smelting & Refin'ng	91	66½	74¾	58½	71⅞	63⅜	68
Brooklyn Rapid Transit	94½	76¾	92¾	83¾	93⅜	87½	92⅞
Chino Copper	50⅜	25	47⅜	30⅜	44	37½	42¼
Colo. Fuel & Iron Co.	43¾	23⅛	41½	24½	34⅛	28⅛	32
Consolidated Gas	149½	135¾	142⅜	125⅛	139½	129½	133¾
General Electric	188½	155	187	129¾	150⅝	140	147½
Interborough Metropolitan ...	22	16¼	19⅝	12⅜	16⅜	14½	15
International Harvester	126⅞	105¼	111½	96	113½	100⅞	105⅞
International Steam Pump ...	34	12	18½	4½	9⅞	6⅛	7⅞
Lackawanna Steel	55½	28	49⅞	29⅞	40	34	38½
National Lead	68¼	51⅛	56¼	43	52	44	50
Ray Consolidated Copper	24⅛	16	22	15	20⅜	17¾	20
Republic Iron & Steel	35⅛	15¾	28⅜	17	27	19¾	25
Republic Iron & Steel, pfd...	93⅜	64½	92¼	72	90	80	89½
Sloss-Sheffield	59¾	39¼	45½	23	35	27	34½
Texas Co.	130⅝	81	132½	89	149	128	147¾
U. S. Rubber	67⅞	45¼	69½	51	62⅝	57¾	59⅛
U. S. Steel Corporation	80¾	58¼	69⅛	49⅞	67¼	57½	66⅛
U. S. Steel Corporation, pfd.	117	107¼	110¾	102½	112¾	106¼	110
Utah Copper	67½	52½	60⅝	39⅝	56¼	48⅞	54¾
Va.-Carolina Chem.	57¼	40¾	43⅛	22	33¼	28	31¾
Western Union Telegraph ...	86¼	72	75⅛	54⅛	66⅞	57¾	64

any impingement before the combustion is complete.

The second method involves a shorter flame and low velocity. This produces a lazy flame with the least cutting action upon the charge or brickwork. It consists in admitting the air supply entire with the coal at low velocity. Under this condition the fuel burns close to the nozzle and develops through the whole fuel cloud almost instantly. The cone formed is very short in the fuel cloud.

In the long-flame method it is certainly possible to introduce with the fuel all of the air and excess air required for combustion, and it is probable that this practice may prevail with further developments. At present such practice seems to develop difficulties in the direction of cutting out the firebrick. Taking up say 75 per cent. of the air from a condition of very low velocity it acts as a deterrent or brake upon the current of high velocity due to high pressure, minimizing thereby the destructiveness of blow pipe conditions. For this reason I believe that use under the conditions of full air supply at high velocity is at present premature.

Many serious mistakes have been made in attempts to burn pulverized fuel in the selection of the wrong method. As a matter of fact, however, the short-flame or second method has been the latest developed, and from it may be expected a vast expansion of the field of usefulness of pulverized coal.

The furnace requirements for pulverized fuel are in chief: Cubical capacity for the developed gases that low velocities be maintained; and provision for maintaining the entrance chamber in such a heated condition that deflagrations shall be continuous and thorough.

In the long-flame method the heat of the burning fuel is not effective in maintaining the near-by walls at high temperature. There must be some appropriation of heat for this purpose, by the form of the furnace, by outside accession, or by the charge itself parting with its invested heat.

As influencing this "heated-chamber" requirement the nature of the fuel has to be considered. A coal with a large percentage of volatile hydro-carbons will flash and burn more promptly than where the volatile elements are in low percentage.

James W. Rawlins, Assistant smelter superintendent, Canadian Copper Company, Copper Cliff, Ontario (abstract):

The plant of the Canadian Copper Company at Copper Cliff, Ontario, is the only place where pulverized coal has been used successfully and continuously for firing reverberatory furnaces. Attempts of an experimental nature have been made at various other plants, notably at the Highland Bay by Sorensen, and at Cananea by Shelby, about six or seven years ago, but while these demonstrated that pulverized coal firing was possible and possessed several important advantages over the usual method, still coal dust firing has not yet

There are two reverberatory furnaces in use at Copper Cliff, each being 19 ft. wide by 112 ft. long. The roof is about 4 ft. 6 in. above the surface of the bath of molten matter and slag. The material charged consists of about 85 per cent. calcined ore and 15 per cent. flue dust. These furnaces were put in commission nearly two years ago and no other system of firing has ever been used, hence no comparisons from experience gained here can be made. The dust firing has been given practically no trouble since the furnaces were started. When both furnaces are in operation about 140 tons of pulverized coal are burned daily.

One of the most serious difficulties encountered at Cananea was the accumulation of the coal ash in the flues. This was so bad as to practically choke the flues after about three days running. When we first started our furnaces, we experienced a small amount of trouble from the same source, but it never was so serious as in the case mentioned. This may be partly due to the character of the coal we use. An average analysis covering a period of 12 months is as follows:

Volatile Material	38.75
Fixed Carbon	52.80
Ash	8.45
Sulphur	2.05
H_2O ..	2.00 to 3.00
B. T. U.....	13,600

The ash in this coal is very much lower than that in the coal used by Shelby, and would naturally cause less trouble. A small amount of ash always sticks at the throat of the furnace and fuses there, part of it running back into the bath and part remaining and tending to block up the flue.

This is barred out once every 24 hours without interfering with the operation of the furnace. About 400 or 500 lb. of the ash also collects on the floor of the flue just at distance of about 15 ft. back from the throat. This is drawn out once each day by means of hoes, through the side doors in the flue. This condition is maintained by burning so much coal, (or doing what has the same effect, restricting the air supply at the bridge wall) that ignition is not complete until the throat is reached. The draft may also be of some importance. The suction at the throat is equivalent to about one inch of water.

Besides the ash which collects in the flue and at the throat, there is also some carried up the stack, but the greater portion undoubtedly settles on the bath and becomes part of the slag. So far, however, this has not caused any trouble. The slag at present made is quite basic in character, running about 30 per cent. silica, and is probably better suited to combine with the coal ash than one higher in silica would be. Next year we expect to make a slag running 36 or 38 per cent. silica and anticipate trouble from this source then. The ash contains about 20 to 22 per cent. alumina and 35 per cent. silica.

Another trouble mentioned by Shelby is the deposition of carbon. We have never seen any evidence of this.

The coal is blown into each furnace through five burners at the bridge wall. These are five inches in diameter and point horizontally into the furnace about one foot above the surface of the bath. The pulverized coal is fed from 60-ton storage bins in the rear of each furnace by means of a screw conveyor and falls in front of the air blast about two feet outside the furnace wall. Low pressure air is supplied by two No. 8 Sturtevant blowers running about 1500 r. p. m., giving about eight ounces pressure between the fan and the burner. The speed of the screw conveyor can be varied from about 15 r. p. m. to 40 r. p. m. The speed usually employed is from 30 to 35 r. p. m., which will feed 70 to 75 tons per 24 hours into the furnace.

The amount of solid charge smelted in 24 hours is from 350 to 400 tons, so that one ton of coal smelts about 5 tons charge. This compares very favorably with results obtained at Western plants, where other systems of firing are used. Oil firing seems to have a greater efficiency. At one plant an equivalent of 6.6 tons charge per ton of coal is put through, but the cost of oil is so much greater for equal quantities of heat units that the extra efficiency is more than off-set by the higher cost of fuel.

A recent screen test showed the size of the ground coal to be as follows:

Thru 60 mesh.....	all
On 80 mesh.....	3.20%
On 100 mesh.....	6.00%
On 200 mesh.....	56.00%
Thru 200 mesh.....	34.80%
	100.00%

With this degree of fineness we are able to get very rapid combustion. The bulk of the coal is burned very close to the bridge wall, but the mixture of coal and air is so adjusted that some flame always carries down to the throat of the furnace. This is perfectly under control and we could, if desirable, carry on the combustion so that the flame would not extend much beyond half way down the furnace. This, however, would leave the skimming end of the furnace too cold and would at once cause trouble from the ash.

The cost of crushing, drying and pulverizing the coal and feeding it into the furnaces has averaged for the past five months 40 cents per ton. This figure includes: Labor, power, coal for drying and repairs. The repair costs are rather high, being about 10 cents per ton. The chief wearing parts of the plows, the rollers, the fans and the conveyors.

E. W. Shinn, Chief Engineer, Quigley Furnace & Foundry Company, Springfield, Mass. (abstract):

About ten years ago Mr. John V. Culliney, superintendent of the American Iron & Steel Mfg. Co. at Lebanon, Pa., started to experiment with powdered coal in connection with puddling and heating furnaces. After two years of work in this line he perfected the system now used at their plant, and which has been operating successfully for over eight years. This is the first rolling mill in this country to operate furnaces successfully, using powdered coal as fuel.

When we stop to consider that the advantage of burning powdered coal has been known for the last 30 years, we wonder why it is only now becoming a subject for discussion.

I understand that it was used years ago by the Oliver Iron Works on the South Side Pittsburgh in puddling furnaces, but evidently with indifferent success, as its use was abandoned.

Previous to the successful application at Lebanon, millions of dollars had been lost in experiments to burn powdered coal in furnaces, boilers and locomotives. It has, however, been used with good results in cement kilns for years, but here the only requisite is high temperature.

Mr. Culliney found that four necessary conditions must exist before powdered coal can be economically burned:

First—The coal must be thoroughly dry.

Second—It must be finely pulverized.

Third—The feed must be uniform.

Fourth—The pressure must be right.

He was one of the first to realize the necessity of drying the coal; up to this time the coal had been merely air dried and fine grinding in this condition is impossible. Damp coal can be burned in a cement kiln or under a boiler, but cannot be burned successfully in a furnace where absolute regulation of heat is necessary. Moisture in the coal tends to lower the flame temperature, and at the same time makes the working of the furnace more or less subject to weather conditions. But the greatest disadvantage resulting from dampness is the tendency of the infinitesimal particles of coal to adhere and form little balls which greatly reduce the surface exposed to the action of the oxygen of the air, causing incomplete combustion and smoke.

When powdered coal was first tried on furnaces the air used was high pressure air from 60 to 100 lb. per sq. in. This causes high temperatures in the furnace at certain points and excessive wear. The heat was poorly distributed and the combustion incomplete, and such pressures were found to be absolutely unsuited to furnace work. It took a good deal of experimenting before the present low pressures were finally adopted and found to give the best results. Two pressures are used, the higher one for blowing the coal into the furnace, depending on the distance of the controller from the furnace, the lower pressure supplying the air for combustion and the quantity being regulated to suit the amount of coal to be burned.

About a year ago the company with which I am connected entered the powdered coal field and has commercialized the system, as developed and perfected by the American Iron & Steel Mfg. Co., and has installed a number of complete powdered coal milling and burning plants. They have three operating at the present time, and have four more under construction.

The American Iron & Steel Manufacturing Company is now burning 140 tons of powdered coal per day at its Lebanon plant, giving this company the distinction of having the largest pulverized coal furnace equipment in the world.

When we consider that we waste half of the coal in hand fired furnaces and from 20 to 40 per cent. of the coal if gas producers are used, it is about time that a method of burning coal were adopted where the entire heat value of the coal is utilized in the furnace, where it is wanted. When using powdered coal the furnace becomes a continuous gas producer of 100 per cent. efficiency, as far as the generation of heat is concerned, and it is my opinion that the days of the ordinary gas producers are numbered, and it will be but a few years before their use will be entirely discontinued, except for low volatile and for anthracite coals.

Besides showing these savings in quantity of fuel burned, the fact that the furnaces are smokeless must not be overlooked, as in the neighborhood of large cities this one consideration is getting to be of such importance that plants will be compelled to use powdered coal for this reason alone. Powdered coal burns like gas, in fact to look at it burning in a furnace one would not know the difference, and it can be turned up and down at will, and the quantities of air and coal changed to suit conditions, making it very flexible and easy to control.

In order to show the savings made possible by the use of powdered coal, we are installing a plant in connection with open hearth furnaces, which are now using oil as fuel, where a $32,000 investment will save $100,000 per year, also a plant in a tube works, now using anthracite coal, where a $43,000 investment will save $70,000 per year. As the savings are a percentage of the coal used, it is harder to show a large saving in the Pittsburgh District on account of the low price of coal, than it is either East or West of here.

ZINC SMELTING CAPACITY OF THE U. S.

Operating company.	Location.	Retorts at close of 1912	Retorts at close of 1913.	Additional retorts building in 1914.
ILLINOIS:				
American Zinc Co. of Illinois	Hillsboro	1,600	3,200	800
Collinsville Zinc Smelting Co.	Collinsville	1,536	1,536	.....
Granby Mining & Smelting Co.	East St. Louis.	.....	.....	3,240
Hegeler Bros.	Danville	1,800	1,800	1,800
Illinois Zinc Co.	Peru	4,640	4,640	.....
Mathiessen & Hegeler Zinc Co.	La Salle	5,256	5,256	912
Mineral Point Zinc Co.	Depue	4,520	6,800	2,280
National Zinc Co.	Springfield	3,200	3,200	.....
Robert Lanyon Zinc & Acid Co.	Hillsboro	1,600	1,840	.....
Sandoval Zinc Co.	Sandoval	996	996	.....
Total		25,148	29,268	9,032
KANSAS:				
Altoona Zinc Smelting Co.	Altoona	3,300	3,960	
American Zinc, Lead & Smelting Co.	Caney	3,648	3,648	
Do	Dearing	3,840	3,840	
Chanute Zinc Co.	Chanute	1,280	1,280	
Edgar Zinc Co.	Cherryvale	4,800	4,800	
Granby Mining & Smelting Co.	Neodesha	3,840	3,760	
Kansas Zinc Co.	Gas	*2,520	†2,520	
La Harpe Spelter Co.	La Harpe	640	1,856	
Pittsburg Zinc Co.	Pittsburgh	910	910	
Prime Western Spelter Co.	Gas	4,834	4,768	
		29,612	31,342	
OKLAHOMA:				
Bartlesville Zinc Co.	Bartlesville	5,184	5,184	
Do.	Collinsville	8,064	8,064	
Lanyon-Starr Smelting Co.	Bartlesville	3,456	3,456	
National Zinc Co.	Bartlesville	4,480	4,480	
Tulsa Fuel & Manufacturing Co.	Collinsville	6,232	6,232	
Total		27,416	27,416	...
PENNSYLVANIA:				
American Zinc & Acid Co.	Burgettstown	..	..	3,456
New Jersey Zinc Co. of Pennsylvania.	Palmerton	5,772	5,760	.....
WEST VIRGINIA:				
Clarksburg Zinc Co.	Clarksburg	2,736	2,736	
Grasselli Chemical Co.	Clarksburg	5,760	5,760	
Do	Meadowbrook	6,912	6,912	
		15,408	15,408	
MISSOURI:				
Edgar Zinc Co.	St. Louis	2,000	2,000	
Nevada Zinc Co.	Nevada	672	†672	
		2,672	2,672	
COLORADO:				
United States Zinc Co.	Pueblo	1,920	1,920	
Total for all States		107,948	113,786	12,488

* Idle in 1912. † Idle in 1913.

PIG IRON PRODUCTION.

Official statistics gathered by Bureau of Statistics of American Iron and Steel Institute, made public February 14, 1914. Gross tons of 2,240 lbs., all grades, including spiegeleisen, ferromanganese, ferrosilicon, ferrophosphorus, etc. Among the furnaces counted as "out" on December 31, 1913, are a number which banked for a short period.

	Number of stocks.				Production, Gross tons.		
	In blast, June 30, 1913.	December 31, 1913. In.	Out.	Total.	First half. 1913.	Second half. 1913.	Total. 1913.
Massachusetts	1	1	1	2	8,581	4,229	12,810
Connecticut	2	1	2	3			
New York	20	12	16	28	1,193,450	994,170	2,187,620
New Jersey	2	2	5	7			
Pennsylvania	117	78	83	161	6,885,058	6,069,882	12,954,940
Maryland	3	1	4	5	152,002	137,957	289,959
Virginia	9	8	16	24	192,530	149,285	341,815
Georgia	0	0	4	4			
Texas	0	0	4	4			
Alabama	24	23	26	49	1,078,173	979,738	2,057,911
West Virginia	3	1	3	4			
Kentucky	2	1	7	8	165,000	150,731	315,731
Mississippi	0	0	1	1			
Tennessee	8	4	14	18	189,019	91,522	280,541
Ohio	62	40	35	75	3,660,473	3,469,052	7,129,525
Illinois	23	11	15	26	1,653,017	1,274,960	2,927,977
Indiana	10	5	5	10			
Michigan	9	10	5	15	894,743	881,140	1,775,883
Wisconsin	5	4	3	7			
Minnesota	1	1	0	1	222,167	145,159	367,326
Missouri	1	1	1	2			
Colorado	1	1	5	6			
Oregon	0	0	1	1	194,389	129,874	324,263
Washington	0	0	1	1			
California	0	0	0	0			
Total	304	205	257	462	16,488,602	14,477,699	30,966,301
Pennsylvania—							
Lehigh Valley	12	9	13	22	580,591	473,095	1,053,686
Schuylkill Valley	11	8	10	18	484,257	381,702	865,959
L. Susquehanna Val.	8	6	9	15	372,781	262,298	635,079
Juniata Valley	2	2	5	7	80,110	60,063	140,173
Allegheny County	41	24	23	47	3,128,446	2,871,097	5,999,543
Shenango Valley	22	11	13	24	1,322,686	1,066,007	2,288,693
Miscel. bituminous	17	15	7	22	1,013,883	953,245	1,967,128
[illegible]	1	[illegible]	[illegible]	6	2,304	2,375	4,679
Ohio—							
[illegible]	22	11	14	25	1,512,690	1,475,280	2,987,970
[illegible]	0	1	1	1	1,142,044	1,085,493	2,227,537
[illegible]	17	12	5	17			
Miscel. bituminous	13	7	8	15	788,074	679,934	1,468,008
[illegible]	10	10	5	15	216,915	227,094	444,009
[illegible]	0	0	2	2	750	1,251	2,001

Production According to Fuel.

Fuel used—Gross tons	1909.	1910.	1911	1912.	1913.
Bituminous, chiefly coke	24,731,037	[illegible]	23,141,296	29,132,733	30,348,973
Anthracite and coke	682,383	628,579	[illegible]	236,467	254,901
Anthracite alone	16,048	20,503	17,027	10,712	22,446
Charcoal	376,003	396,507	278,676	347,025	339,981
Total	25,805,471	[illegible]	24,649,547	29,726,937	30,966,301

Form in Which Produced or Delivered.

	1912.	1913.
Molten	16,166,722	16,738,952
Machine cast	6,214,121	6,522,075
Chill cast	726,017	1,000,172
Sand cast	6,309,495	6,689,680
Direct castings	10,582	15,422
Total	29,726,937	30,966,301

Miscellaneous.

The pig iron made for sale in 1913 amounted to 9,734,238 tons, the quantity made for the consumption of the makers being 21,232,063 tons, the proportions being 31.4 per cent and 68.6 per cent. The statistics by this classification begin with 1913.

The partial segregation by grades, to be followed later by complete details, is as follows:

	1912.	1913.
Bessemer	11,381,656	11,276,567
Low phosphorus	282,359	316,818
Basic	11,417,886	12,537,746
Ferromanganese	125,378	119,496
Spiegeleisen	96,346	110,338
All other	6,423,312	6,605,336
Total	29,726,937	30,966,301

During the first six months of 1913 the total number of furnaces actually in blast during any part or the whole of the period was 348, and during the last half of the year the number was 330. During the first half of 1912 the number of furnaces actually in blast was 302, as compared with 237 in the second half.

On December 31, 1913, there were three furnaces in course of erection and eight were being rebuilt. Of the building furnaces one was in Pennsylvania and two were in Minnesota. When completed all will use coke for fuel. They will have a total annual capacity of 505,000 gross tons of pig iron.

In 1913 there were five entirely new blast furnaces built, four coke and one charcoal, with an annual capacity of 596,000 gross tons, as follows: Pennsylvania, two, with an annual capacity of 360,000 tons; Virginia, one, with an annual capacity of 50,000 tons; Ohio, one, with an annual capacity of 182,500 tons; and Mississippi, one, (charcoal,) with an annual capacity of 3,500 tons. In addition one charcoal furnace in Georgia, with an annual capacity of 13,500 tons, was revived.

During 1913 there were 10 blast furnaces abandoned or dismantled, with a total annual capacity of 316,000 gross tons, as follows: New York, one, with an annual capacity of 30,000 tons; Pennsylvania, four, with an annual capacity of 76,000 tons; Virginia, two, with an annual capacity of 50,000 tons; Tennessee, one, with an annual capacity of 48,000 tons; Ohio, one, with an annual capacity of 85,000 tons; and Michigan, one, with an annual capacity of 27,000 tons. When last in blast two furnaces, with an annual capacity of 29,000 tons, used charcoal, and eight furnaces, with an annual capacity of 287,000 tons, used mineral fuel. Some of these furnaces had been idle for many years.

IRON AND STEEL.

PIG IRON IN FEBRUARY.

The pig iron movement which began early in December lasted only into the early part of February. Indeed, by the beginning of February most of the markets had quieted down, but the valley market, which had been relatively inactive, showed a fairly heavy movement in the closing days of January and the early days of February. The lack of consonance was in keeping with the fact that the valley market has lagged for some time. The capacity in the valleys is relatively large compared with consumptive demand, a fact which is easily accounted for in the large amount of steel works construction of blast furnaces in recent years, whereby the valley furnaces have been deprived of a considerable part of their old time market. This, however, is not the first time that there has been a problem as to the valley furnaces. They have passed through several such experiences, only to be found strictly in the race in the long run.

About the beginning of February the Youngstown Sheet & Tube Company bought some 35,000 tons of basic pig iron from valley furnaces, taking also 15,000 tons of forge. At the same time there were purchases by other interests amounting to fully as large a tonnage, and the buying sent the basic pig iron market up from its nominal level of $12.50 to $13.25, at which it has since stood. Before the middle of the month the Republic Iron & Steel Company bought 10,000 tons of Bessemer, paying $14.25, valley, for it, this comparing with sales made at $14 in January. The advance in steel making pig iron in the valleys constituted the only important market movement in pig iron in the month. In nearly all other markets advances were recorded, but they were largely the result of January buying. The furnaces seem to have marked up prices after disposing of their iron. Indeed, there was ground for suspicions in some cases that they would not have advanced their prices if any definite demand had remained.

Important advances in open quotations occurring during the month were: Basic, valley, 75 cents to $13.25; Bessemer, valley, 25 cents to $14.25; foundry, valley, 25 cents

PIG IRON PRICES.

(Averaged from daily quotations at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered).

	Bessemer, Valley	Basic, Valley	No.2 fdy, Phila.	Basic Phila.	No. 2X fdy, Buffalo	Cleveland	No. 2 fdy Chicago	Birmingham.	Ferro-manganese.*	Furnace coke†
1913—										
Jan.	17.25	16.50	17.50	18.00	18.49	17.50	17.75	18.48	13.72	65.00	3.85
Feb.	17.25	16.43	17.12	17.75	18.23	17.22	17.44	17.87	13.46	65.00	2.60
Mar.	17.20	16.14	16.60	17.50	17.81	16.79	16.75	17.75	13.04	64.00	2.47
April	17.00	15.87	15.66	17.00	17.49	15.96	15.41	17.60	12.60	61.00	2.20
May	17.00	15.25	14.73	16.50	16.77	15.58	15.56	16.67	11.74	61.00	2.15
June	16.34	14.50	14.18	16.50	16.26	14.43	14.95	16.24	10.89	61.00	2.20
July	15.86	14.40	13.88	15.90	15.66	14.01	14.68	15.38	10.50	59.00	2.50
Aug.	15.63	14.09	13.94	15.25	15.56	14.20	14.50	15.44	10.85	56.70	2.50
Sept.	15.75	14.00	14.00	15.25	15.97	14.25	14.55	15.50	11.20	54.50	2.37
Oct.	15.67	13.97	13.83	15.25	15.94	14.25	14.73	15.50	11.48	50.28	2.10
Nov.	15.23	13.28	13.57	15.13	15.61	13.96	14.35	15.43	10.80	50.00	1.88
Dec.	14.95	12.83	13.38	14.75	14.98	13.32	13.76	14.83	10.50	47.00	1.77
Year	16.26	14.77	14.87	16.23	16.56	15.12	15.37	16.39	11.73	57.87	2.38
1914—											
Jan.	14.06	12.51	13.00	14.25	14.69	12.76	13.30	14.35	10.63	43.42	1.88
Feb.	14.13	13.21	13.21	14.00	14.88	13.02	13.56	14.46	10.52	38.33	1.90

*Contract price, f.o.b. Baltimore; †Prompt, f.o.b. Connellsville ovens.

IRON AND STEEL.

to $13.25; foundry, Philadelphia, 25 cents to $15; foundry, Buffalo, 50 cents to $13.25 delivered Buffalo; foundry, Chicago, 75 cents to $14.75, delivered Chicago; southern iron, 25 cents to $10.75, Birmingham.

The position of the merchant furnaces as a class is now well defined. They have sold their prospective make fairly well for the next two or three months, with some important contracts running to July 1st, and occasional contracts, particularly for basic iron, running to the end of the year. The consumers are equally well covered, on the basis of consumption at the recent rate. Production and consumption are now closely balanced, and any increase in consumption will probably necessitate the blowing in of additional furnaces, for there does not seem to be any accumulating. Prices, however, are still low, from the viewpoint of the furnaces out of blast. As a rule they blew out, on the declining market, when prices were higher than they are now, and they are not likely to blow in until as high a level, or a higher, is reached. Accordingly, while an increase in demand will probably bring more furnaces into blast, it is likely that market prices will advance first.

The course of the pig iron market as a whole is well shown by our composite pig iron, the record of which is as follows:

	On first of month.	Change during month.
January (1913)	$17.450	—17.5c
February	17.275	—33.0
March	16.945	—32.0
April	16.621	—61.0
May	16.015	—76.5
June	15.250	—55.0
July	14.700	—25.0
August	14.450	+17.5
September	14.625	+15.0
October	14.775	—20.0
November	14.525	—47.5
December	14.050	—50.5
January (1914)	13.545	—12.0
February	13.425	+45.0
March	13.875	

FINISHED STEEL PRICES.

(Averaged from daily quotations, f.o.b. Pittsburgh.)

	Shapes.	Plates.	Bars.	Pipe.	Wire.	Wire Nails.	Cut Nails.	Sheets Black.	Sheets Galv.	Tin plate.	Composite Finished steel.
1913—											
January	1.50	1.50	1.40	80	1.55	1.75	1.70	2.32	3.47	3.60	1.7737
February	1.45	1.45	1.40	80	1.55	1.75	1.70	2.35	3.50	3.60	1.7625
March	1.45	1.45	1.40	80	1.56	1.76	1.70	2.35	3.50	3.60	1.7646
April	1.45	1.45	1.40	79⅞	1.60	1.80	1.70	2.35	3.45	3.60	1.7743
May	1.45	1.45	1.40	79¼	1.60	1.80	1.70	2.35	3.40	3.60	1.7786
June	1.45	1.45	1.40	79	1.55	1.75	1.70	2.29	3.38	3.60	1.7719
July	1.45	1.45	1.40	79	1.50	1.70	1.70	2.25	3.31	3.60	1.7600
August	1.45	1.44	1.40	79⅛	1.47	1.67	1.60	2.20	3.25	3.60	1.7400
September	1.40	1.40	1.40	80	1.43	1.63	1.60	2.12	3.17	3.60	1.7093
October	1.39	1.36	1.39	80	1.40	1.60	1.60	2.04	3.08	3.50	1.6779
November	1.34	1.29	1.30	80	1.40	1.60	1.60	1.98	2.98	3.40	1.6203
December	1.24	1.21	1.22	80	1.35	1.55	1.60	1.90	2.90	3.40	1.5558
Year	1.42	1.41	1.38	79¾	1.50	1.70	1.66	2.21	3.28	3.56	1.7241
1914—											
January	1.20	1.20	1.20	80	1.33	1.53	1.60	1.86	2.86	3.40	1.5394
February	1.25	1.21	1.22	79½	1.40	1.60	1.60	1.95	2.95	3.40	1.5794

IRON AND STEEL.

STEEL IN FEBRUARY.

The facts as to the course of the steel market in February are well established. The issues are as to the bearing of the market developments—what they presage for the future.

As to prices, there was a definite and rather general movement on the part of producers, at the beginning of the month, towards the establishment of higher levels. Some of the efforts succeeded, some of them failed practically at the outset. We cannot see that any market price actually advanced and then declined. Some prices appeared to do so but in the retrospect we do not think it can be said that any buyer actually purchased material early in the month at a higher price than he would have had to pay had he deferred the purchase until late in the month. The price changes which prevailed were in steel pipe and wire products. On the first business day of the month the National Tube Company issued a new list of steel pipe discounts, reducing the discounts one-half point, to a basis of 79½% for ¾ to 3-inch, thus effecting an advance of approximately a dollar a ton. At the same time the American Steel & Wire Company advanced its prices on ordinary wire products a dollar a ton, putting nails on the basis of $1.60. The independents in the respective lines promptly adopted the new prices. The movement which failed was that in bars, plates and shapes. The majority of leading producers of these commodities announced advances from 1.20c to 1.25c. As a rule these announcements were tentative, the home office instructing sales representatives to secure the advanced prices, but not to allow an order to get away at a lower figure without first consulting the home office. How it occurred that the market did not advance when all or very nearly all of the leading manufacturers started to quote the advanced level is not clear, but the fact is clear that the actual market did not advance, as to actual transactions. The recession from the advanced position seems to have occurred quickly with most producers, and as to bars and plates it is not certain that any manufacturer continued to quote the advanced prices, apart from the conspicuous exception of the Carnegie Steel Company, which has up to this writing maintained as its minimum 1.25c. on bars, plates and shapes. In shapes the general market seems to have advanced to 1.25c. though there have been sales at less, these being regarded as exceptional rather than general.

As to buying the market developments of February are clear. There was a distinct and very material recession in new buying, distinguishing February from January very clearly. Contracting for definite tonnage, to be specified later, decreased in particular.

As to specifications the record of February was good. Including new orders with specifications, and specifications against contracts made at the time or previously made, the amount of definite business entered in February was, on the average, fully as large in February as in January. Considering that in January business was relatively light in the first week or ten days, and much heavier thereafter, the further statement needs to be made that in most products at least the average of actual business during February was at a rate equal to the rate in the latter part of January.

In production and shipments February as a month not only showed a great gain over January as a month; it also showed a progressive increase in the rate, though only a very small one in the latter part of the month. During January production and shipments increased rapidly. Many plants were closed over the holidays, and the rate of production was probably well under 50% at the beginning of the month. With resumptions after the holidays the rate soon grew to the rate just before the holidays, and then it continued to increase so that by the end of January it was about 60% of capacity. During the first half of February the rate increased to about 70%, since when it increased slightly, to between 70 and 75%, the present rate of working.

Bearing of February Developments.

As to the developments and trends which we have endeavored to chronicle above there is practically no question. The question is what they portend for the future. In one sense there was a "lull" in February. From another viewpoint there was a definite recession in market strength, in

IRON AND STEEL.

that the rate of improvement shown by January did not continue.

The question may well be asked, of those who take an unfavorable view of this February lull or setback, did they, when the January improvement set in, expect that movement to continue uninterrupted for a considerable period, Our recollection is that many of them at least did not. They said that was a temporary movement, due to jobbers and manufacturing consumers buying more liberally because after a long decline they had come to have some confidence in prices. Necessarily then the movement would be limited in extent, and fresh favorable developments would have to be awaited to make a further improvement. Such favorable developments are now looked for, first, the opening of spring, which is not far distant, second, more liberal buying on the part of railroads, for their needs have been accumulating. Indeed, in the closing fortnight of February there has been distinctly noticed a greater buying tendency on the part of railroads.

The future of the market depends upon a decided renewal of interest on the part of buyers. Superficially the present flow of actual orders and specifications is approximately sufficient to maintain the present rate of steel mill operations, but that is not adequate to maintaining the present temper of sellers and the present level of prices, because the human element

U. S. STEEL CORPORATION'S OPERATIONS.

EARNINGS AND UNFILLED ORDERS.

Earnings by Quarters.

Net earnings by quarters since 1908:

Quarter.	1913.	1912.	1911.
1st	$34,426,801	$17,826,973	$23,519,203
2nd	41,210,813	25,102,265	28,108,520
3rd	38,450,400	30,063,512	29,522,725
4th	23,036,349	35,185,557	23,155,018
Year	137,133,363	108,178,307	104,305,466
	1910.	1909.	1908.
1st	$37,616,876	$22,921,268	$18,229,005
2nd	40,170,960	29,340,491	20,265,756
3rd	37,365,187	38,246,907	27,106,274
4th	25,901,730	40,982,746	26,246,675
Year	141,054,753	131,491,412	91,847,710

Unfilled Orders.

(At end of the Quarter):

	First.	Second.	Third	Fourth.
1903..	5,410,719	4,666,578	3,278,742	3,215,123
1904..	4,136,961	3,192,277	3,027,436	4,696,203
1905..	5,579,560	4,829,655	5,865,377	7,605,086
1906..	7,018,712	6,809,584	7,936,884	8,489,718
1907..	8,043,858	7,603,878	6,425,008	4,642,553
1908..	3,765,343	3,313,876	3,421,977	3,603,527
1909..	3,542,590	4,057,939	4,796,833	5,927,031
1910..	5,402,514	4,257,794	3,158,166	2,674,757
1911..	3,447,301	3,361,058	3,611,317	5,084,761
1912..	5,304,841	5,807,346	6,551,507	7,932,164
1913..	7,468,956	5,807,317	5,003,785	4,282,108

BOOKINGS AND SHIPMENTS.

In this table, first two columns, percentages of bookings and shipments to total capacity, are our estimates, while last column is derived from official reports of "unfilled tonnage" while third percentage column is directly computed from this tonnage column.

1912 -	Shipments. %	Bookings. %	Difference. %	Difference. Tons.
January	70	95	+25	+294,960
February ...	78	85	+ 7	+ 74,479
March	85	68	—17	—149,359
April	92	124	+32	+360,044
May	93	101	+ 8	+ 86,098
June	94	99	+ 5	+ 56,363
July	82	95	+13	+149,733
August	92	110	+18	+206,296
September ..	98	135	+37	+388,132
October	98	187	+89	+1,042,874
November ..	96	120	+24	+258,512
December ..	97	104	+ 7	+ 79,281
January 1913	98	89	— 9	—104,796
February ...	98	82	—16	—170,654
March	93	77	—16	—187,758
April	93	51	—42	—490,194
May	95	41	—54	—654,440
June	93	47	—46	—517,405
July	90	55	—35	—407,961
August	90	75	—15	—175,888
September ..	92	74	—18	—219,683
October ...	87	71	—40	—490,018
November ..	70	59	—11	—117,420
December ..	50	40	—10	—114,239
January 1914	55	83	+28	+331,572

IRON AND STEEL.

will enter. What was entirely satisfactory to steel sellers when it meant increasing their rate of operating from barely 50% to a level of 70% or over was only satisfactory during the period of improving operations. Sellers would not, in all probability, remain content for a period of months with a rate of 70 or 75%. Soon they would become restive and look for more.

The stability of the market, from the viewpoint we here take, rests upon whether further improvement in demand will occur soon enough to forestall the weakening which a continuance of present conditions would develop. Is there enough strength, in the volume of business on books, and the present flow of new business, to tide the mills over into April when spring demands and increased railroad buying will give a fresh impetus? Will the present condition prove to be simply a lull, a mere hiatus between periods of improvement, or will it develop into a definite recession.

We think there is easily enough strength thus to tide over. We expect the next important market step to be not the development of a definite recession, but the development of a fresh period of improvement. In judging of the possibilities there is this important quantitative consideration, that the mills have relatively little to lose, while they have a great deal to gain. A recession cannot mean a drop to an operation below about 60% for we are convinced that even in moderately bad times, particularly in spring, the country cannot get along for any period of months with less than 60% as much steel as the industry can make when running full. From the present operation of 70 to 75% a drop to 60% is not very serious, but seems to be the worst possible. On the other hand it would be relatively easy for demand to run the mills up to 90 or 100%, and that would be extremely good. Thus the mills seem to have little to lose and a great deal to gain. Their apprehension, during the next 30 or 60 days, should be less that they may lose a little business, than that they should mortgage their future by selling too much forward material.

WESTERN IRON AND STEEL.

We are just beginning to realize in the West how much the revision of the tariff and other uncertainties of the change at Washington affected business during the past year. We have forgotten the old theory that a year of a Presidential Election was always a poor one, but we had not altogether gotten over the idea that tariff revision was certain to ruin everybody else except ourselves. We went through 1913 looking for trouble, peering down the road with nervous impatience because it did not come . This condition always brings a slowing down in business, even with the soundest underlying conditions, and that is what happened during the past year.

Even the farmers seem to have followed the general rule of caution which prevailed in business. They have been heavy buyers of new implements and machinery for several years, and were able to get along with light purchases the past year, which explains the financial embarrassment of one large western company, and the stocks which other manufacturers are carrying over.

Now that the tariff is out of our minds, and we find the bad effects were localized in a few industries, we are working back toward a normal condition of business. The steel market has developed remarkable strength and recuperative powers. There was a heavy buying movement in pig iron in January and the early part of February, and there is more activity all around in the market.

Structural Business Good.

One of the encouraging features in the situation is the remarkable demand from the fabricators who handle small structural jobs. They have an unusual amount of small work, and there are also good sized building projects coming up in western cities which will require a large aggregate tonnage. Chicago is temporarily overbuilt, but this is not the case with other western cities, and now that money has become cheaper building propositions will be easier to finance.

PRICE CHANGES.

Price changes in merchant bars, structural shapes, plates, wire nails merchant pipe, sheets and tin plates are given below, with dates, from the beginning of 1912. These are the commodities used in compiling our **composite finished steel**. In some cases the dates named are those upon which prominent producers announced price changes, but more frequently dates are merely those upon which our quotations were changed

1912—			
Jan. 23	Wire nails	1.55	to 1.60
Feb. 7	Tin plate	3.40	to 3.30
" 7	Sheets	1.90	to 1.85
" 8	Bars	1.15	to 1.10
" 8	Plates	1.15	to 1.10
" 8	Shapes	1.15	to 1.10
" 26	Sheets	1.85	to 1.80
Mar. 20	Shapes	1.10	to 1.12½
" 21	Shapes	1.12½	to 1.15
" 21	Plates	1.10	to 1.12½
April 1	Plates	1.12½	to 1.15
" 9	Sheets	1.80	to 1.85
" 10	Bars	1.10	to 1.15
" 10	Plates	1.15	to 1.20
" 10	Shapes	1.15	to 1.20
" 22	Sheets	1.85	to 1.90
" 24	Bars	1.15	to 1.20
" 24	Plates	1.20	to 1.25
" 24	Shapes	1.20	to 1.25
May 7	Tin plates	3.30	to 3.40
June 1	Pipe	81%	to 80%
" 26	Bars	1.20	to 1.25
" 26	Shapes	1.25	to 1.30
" 26	Plates	1.25	to 1.30
July 1	Sheets	1.90	to 1.95
" 9	Tin plates	3.40	to 3.50
" 22	Wire nails	1.60	to 1.65
" 24	Sheets	1.95	to 2.00
" 25	Pipe	80%	to 79%
Aug. 1	Bars	1.25	to 1.30
" 1	Plates	1.30	to 1.35
" 1	Shapes	1.30	to 1.35
" 13	Sheets	2.00	to 2.05
" 20	Plates	1.35	to 1.40
" 20	Shapes	1.35	to 1.40
" 26	Wire nails	1.65	to 1.70
Sept. 4	Tin plate	3.50	to 3.60
" 4	Sheets	2.05	to 2.10
" 10	Sheets	2.05	to 2.10
" 11	Sheets	2.10	to 2.15
" 26	Bars	1.30	to 1.35
Oct. 8	Plates	1.40	to 1.45
" 8	Shapes	1.40	to 1.50
" 9	Bars	1.35	to 1.40
" 10	Plates	1.45	to 1.50
" 10	Shapes	1.45	to 1.50
" 17	Sheets	2.15	to 2.25
Dec. 10	Wire nails	1.70	to 1.75

1913—			
Jan. 2	Pipe	79%	to 80%
" 14	Sheets	2.25	to 2.35
Feb. 1	Plates	1.50	to 1.45
" 1	Shapes	1.50	to 1.45
Mar. 24	Wire nails	1.75	to 1.80
April 14	Pipe	80%	to 79½%
May 27	Pipe	79½%	to 79%
June 2	Wire nails	1.80	to 1.75
" 11	Sheets	2.35	to 2.30
" 18	Sheets	2.30	to 2.25
July 1	Wire nails	1.75	to 1.70
Aug. 9	Pipe (¾-3-in.)	79%	to 80%
" 12	Wire nails	1.70	to 1.65
" 21	Sheets	2.25	to 2.15
" 27	Plates	1.45	to 140
Sept. 1	Shapes	1.45	to 1.40
" 22	Sheets	2.15	to 2.05
Oct. 2	Tin plates	3.60	to 3.50
" 3	Wire nails	1.65	to 1.60
" 16	Plates	1.40	to 1.35
" 21	Plates	1.35	to 1.30
" 23	Shapes	1.40	to 1.35
" 24	Sheets	2.05	to 2.00
" 27	Pipe	2½%	extra discount
" 28	Bars	1.40	to 1.35
Nov. 3	Tin plate	3.50	to 3.40
" 7	Bars	1.35	to 1.30
" 17	Sheets	2.00	to 1.95
" 25	Bars	1.30	to 1.25
" 25	Plates	1.30	to 1.25
" 25	Shapes	1.35	to 1.30
" 28	Wire nails	1.60	to 1.55
Dec. 2	Sheets	1.95	to 1.90
" 3	Shapes	1.30	to 1.25
" 4	Plates	1.25	to 1.20
" 11	Bars	1.25	to 1.20
" 22	Shapes	1.25	to 1.20
" 31	Sheets	1.90	to 1.80
1914—			
Jan. 6	Wire nails	1.55	to 1.50
" 7	Sheets	1.80	to 1.85
" 13	Wire nails	1.50	to 1.55
" 23	Sheets	1.85	to 1.90
" 30	Sheets	1.90	to 1.95
Feb. 2	Pipe	80%	to 79½%
" 2	Wire nails	1.55	to 1.60
" 4	Shapes	1.20	to 1.25

IRON AND STEEL.

Railroads Slow Buyers.

The few rail orders that have been announced do not go far to supply the mills with rolling schedules. The agitation over the proposed advance in rates has held the railroads back from ordering their normal requirements in rails and track supplies, and it is doubtful whether they will get any better results than the small picking of cutting off switching allowances and other items that are now under discussion.

Pig Iron Market Slowing Down.

There was a good general demand during February for pig iron in this market. The heavy sales closed in January were followed by considerable activity among foundry buyers, who bought rather freely for the first half of the year. There has not been much inquiry for the last half, and neither northern nor southern furnace interests are anxious to consider deliveries beyond the half year.

The local Northern furnaces have been carrying the war into Africa the past winter by selling Northern iron as far south as St. Louis, and they have done considerable business in Central Illinois. Southern iron used to sell freely in Wisconsin and Michigan, but now it is being driven back towards the Ohio River. Sales in this territory are now restricted to foundries that require southern grades, with their higher percentage of silicon, for mixing with northern and scrap.

The furnaces seem to have carried the matter too far all along the Lakes, getting prices down below cost in their efforts to find a market, but they have sold enough tonnage to justify a reaction to a more rational basis, even if they cannot get the old fashioned rise that always followed the purchase of any large tonnage.

Demand for Concrete Bars.

A good feature in the western steel market is the growing demand for concrete bars, which is becoming a larger factor in the market than the use of bars in agricultural implements. The concrete business is the natural field for the smaller mills, as they are more flexible in operation than the big continuous mills. It does not bother them to get an order for a carload with complex specifications, and they can give prompt deliveries. The profit the small mill can make on extras in this trade keeps it satisfied and lessens competition in the older branches of the bar business.

On the whole, the growth in general business has been sufficient to fill up the weak spots and give the market a strong foundation. When the heavy tonnage comes from the railroads, the mills in this district will be in the old fashioned condition of full activity.

It is understood that large rail orders and other railroad business may be expected in the near future.

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COMPOSITE STEEL.

Computation for March 2, 1914:

Pounds.	Group.	Price.	Extension.
2½	Bars	1.20	3.000
1½	Plates	1.20	1.800
1½	Shapes	1.25	1.875
1½	Pipe (3½ S)	2.00	3.000
1½	Wire nails	1.60	2.400
1	Sheets (28 bl.)	1.95	1.950
½	Tin plates	3.40	1.700
10 pounds			15.725
One pound			**1.5725**

(Averaged from daily quotations.)

	1910.	1911.	1912.	1913.	1914.
Jan...	1.8625	1.7415	1.5123	1.7737	1.5394
Feb..	1.8475	1.7520	1.4878	1.7625	1.5794
Mar..	1.8475	1.7590	1.4790	1.7646	.. .
April.	1.8400	1.7600	1.5206	1.7743	.
May..	1.8325	1.7510	1.5590	1.7786	. .
June .	1.7955	1.6817	1.5794	1.7719	...
July..	1.7755	1.6701	1.6188	1.7600	.
Aug..	1.7550	1.6394	1.6784	1.7400	.
Sept.	1.7470	1.6090	1.7086	1.7093	.....
Oct...	1.7350	1.5461	1.7588	1.6779	..
Nov..	1.7305	1.4930	1.7750	1.6203	.
Dec..	1.7380	1.4812	1.7789	1.5558	...
Year.	1.7922	1.6570	1.6214	1.7241	.... .

SCRAP IRON & STEEL PRICES.

	Melting Steel. Pitts.	Bundled Sheet, Pitts.	No. 1 R.R. Wrought, Pitts.	No. 1 Cast, Pitts.	No. 1 Steel. Phila.	Heavy Melt'g. Ch'go.
1912—						
June	13.45	12.00	13.70	13.00	13.50	12.25
July	13.57	12.35	14.10	13.37	13.60	12.15
Aug.	13.60	12.25	14.15	13.35	14.25	12.10
Sep.	14.10	12.25	14.50	13.40	15.25	12.50
Oct.	15.75	12.95	15.80	14.05	15.75	14.00
Nov.	15.35	13.12	16.00	15.00	15.30	13.80
Dec.	15.10	13.15	15.75	15.10	14.75	13.40
Year	13.76	11.92	14.16	13.28	13.82	12.30
1913—						
Jan.	15.00	13.10	15.35	14.65	14.50	12.75
Feb.	14.35	12.00	15.35	14.65	13.25	12.65
Mar.	14.35	11.60	15.35	14.60	13.60	12.50
Apr.	14.25	10.50	15.50	14.50	13.75	12.60
May	13.50	10.00	15.00	14.25	12.25	11.50
June	13.20	9.25	14.25	13.50	11.50	10.75
July	12.50	8.75	13.35	12.30	11.15	10.60
Aug.	12.40	8.25	13.25	12.50	11.85	10.75
Sep.	12.60	8.00	13.00	12.50	12.25	10.60
Oct.	12.25	7.40	13.00	12.40	11.20	10.35
Nov.	11.40	6.75	11.85	12.00	10.30	10.25
Dec.	11.00	6.40	11.65	11.60	9.75	9.25
Year	13.07	9.33	13.91	13.29	12.12	11.21
1914—						
Jan.	11.25	7.00	12.20	12.00	10.50	9.25
Feb.	12.00	8.25	12.80	12.50	11.50	10.50

COMPOSITE PIG IRON.

Computation for March 2, 1914:

One ton Bessemer, valley	$14.25
Two tons basic, valley (13.25)	26.50
One ton No. 2 foundry, valley	13.25
One ton No. 2 foundry, Philadelphia	15.00
One ton No. 2X foundry, Buffalo	13.75
One ton No. 2 foundry, Cleveland	13.75
One ton No. 2 foundry, Chicago	14.75
Two tons No. 2 Southern foundry Cincinnati (14.00)	28.00
Total, ten tons	$148.75
One ton	**$13.875**

Averaged from daily quotations:

	1910.	1911.	1912.	1913.	1914.
Jan.	17.598	14.375	13.420	17.391	13.492
Feb..	17.215	14.340	13.427	17.140	13.721
Mar..	16.702	14.425	13.581	16.775	.
April	16.315	14.375	13.779	16.363	
May.	15.750	14.242	13.917	15.682	.. ..
June .	15.320	14.032	14.005	14.968	..
July .	15.131	13.926	14.288	14.578	. . .
Aug..	14.727	13.874	14.669	14.565	..
Sep...	14.612	13.819	15.386	14.692	
Oct...	14.435	13.692	16.706	14.737	
Nov..	14.415	13.532	17.226	14.282	..
Dec..	14.408	13.430	17.475	13.838	.
Year.	15.552	14.005	14.823	15.418	.

UNFINISHED STEEL AND IRON BARS.

(Averaged from daily quotations.)

	Billets, Pitts.	Sheet bars, Pitts.	Rods, Pitts.	— Iron bars, deliv.— Phila.	Pitts.	Chi'go.
1912—						
Nov.	26.75*	27.25*	29.90	1.67	1.62	1.55
Dec.	27.00*	27.50	30.00	1.68	1.65	1.55
Year	22.37	23.01	26.15	1.78	1.38	1.32
1913—			* Premiums for open-hearth.			
Jan.	28.40	29.40	30.00	1.68	1.65	1.60
Feb.	29.00	30.00	30.00	1.67	1.65	1.59
Mar.	29.00	30.00	30.00	1.65	1.65	1.58
Apr.	27.50	28.00	30.00	1.68	1.65	1.58
May	27.00	27.50	30.00	1.68	1.65	1.55
June	26.50	27.50	29.00	1.61	1.65	1.50
July	26.50	27.50	28.50	1.55	1.65	1.50
Aug.	25.75	26.50*	28.00	1.42	1.62	1.44
Sep.	24.00*	25.00*	27.37	1.33	1.59	1.37
Oct.	22.50	23.25	26.50	1.32	1.54	1.27
Nov.	20.50	21.50	26.00	1.30	1.45	1.15
Dec.	20.00	21.00	25.25	1.25	1.37	1.12
Year	25.55	26.43	28.39	1.51	1.59	1.45
1914						
Jan.	20.00	20.25*	25.75	1.24	1.35	1.11
Feb.	21.00	22.00	26.00	1.28	1.35	1.14

* Premiums for Bessemer.

COPPER.

COPPER IN FEBRUARY.

The copper producers have lately shown a facility to surprise the public in their monthly statements of operations, and their exceedingly bad report for December was followed by an unexpectedly good report for January. This January report issued February 9th, showed that the total deliveries had exceeded the production by 4,142,182 pounds whereas the trade estimates had called for an increase in stocks of 10,000,000 pounds and upwards. The report for February will be out in a few days and the trade, who are again figuring on an increase in stocks of about 10,000,000 pounds, may again be met with a surprise. We have referred to the January statistics as being favorable but it is proper to mention that the cause for this was entirely due to the exports reaching the very large total of 87,955,501 pounds. The domestic deliveries were not much over half this sum and therefore the market did not derive any benefit from the figures.

As we have mentioned before we do not understand the large increase in the exports and although we are assured in the most positive terms that all the copper that is being shipped to Europe is going into consumption, which is what the foreign statistics seem to indicate, still we cannot down the suspicion that there is something about these exports that does not appear on the surface. Attempts to discover hidden stocks in Europe have brought nothing to light but it does not necessarily follow that there is not a lot of copper being carried there, on consignment for instance.

If the European demand is genuinely what it is claimed to be, an explanation is required for the recent reduction in prices from 14⅞ to 14⅜. Why, if the deliveries were equal to the output in January even at the restricted rate of consumption in this country, was it deemed advisable to lower the market ½c? The producers are not burdened with unwieldy stocks, they surely cannot expect that Europe will take more than she is taking now even at a concession, and therefore the most likely explanation is that the price was cut to attract domestic buying to take the place of an anticipated falling off in the foreign demand later on.

The market was quiet through February and showed a sagging tendency towards the end of the month which was followed by an open reduction in prices by the producers in the first week in March. Usually when the producers reduce their prices they report having made large sales at the reduction, but on this occasion there was no such announcement and the attempt to attract domestic buyers has not succeeded. It is hinted that the harmony existing among the chief producers has become somewhat strained of late and the competition for business caused some irregularity in the market before the price was formally reduced. There was some buying which spread over from January into the first few days of February but since then none

COPPER PRICES IN FEBRUARY.

Day.	NEW YORK — Lake.	NEW YORK — Electrolytic.	NEW YORK — Casting.	LONDON — Standard (Prompt)	LONDON — Best Selected.
	Cts.	Cts.	Cts.	£ s d	£ s d
1.	.....	.....	.....	.....	.....
2.	15.12½	14.80	14.60	66 5 0	71 0 0
3.	15.12½	14.80	14.60	66 7 6	71 0 0
4.	15.12½	14.80	14.60	66 13 9	71 10 0
5.	15.12½	14.80	14.60	65 18 9	71 0 0
6.	15.00	14.70	14.50	65 0 0	70 0 0
7.	.....	.....	.....	.....	.....
8.	.....	.....	.....	.....	.....
9.	15.00	14.70	14.50	65 0 0	69 15 0
10.	15.00	14.75	14.55	65 15 0	70 10 0
11.	15.00	14.75	14.55	65 15 0	70 10 0
12.	.....	.....	.....	65 8 9	70 10 0
13.	15.00	14.70	14.55	65 17 6	70 10 0
14.	.....	.....	.....	.....	.....
15.	.....	.....	.....	.....	.....
16.	15.00	14.70	14.55	65 11 3	70 10 0
17.	15.00	14.65	14.45	65 2 6	70 0 0
18.	15.00	14.65	14.45	65 0 0	70 0 0
19.	15.00	14.65	14.45	64 17 6	70 0 0
20.	14.90	14.60	14.40	64 15 0	70 0 0
21.	.....	.....	.....	.....	.....
22.	.....	.....	.....	.....	.....
23.	.....	.....	.....	64 10 0	69 15 0
24.	14.81¼	14.55	14.35	64 12 6	69 15 0
25.	14.81¼	14.50	14.31¼	64 6 3	69 10 0
26.	14.81¼	14.45	14.30	64 2 6	69 5 0
27.	14.81¼	14.45	14.30	64 5 0	69 5 0
28.	.....	.....	.....	.....	.....
High	15.25	14.85	14.65	66 15 0	71 10 0
Low	14.75	14.40	14.25	64 0 0	69 5 0
Av'ge	14.98	14.67	14.48	65 5 2	70 3 3

COPPER.

LAKE COPPER PRICES.

Average monthly prices of Lake Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.93	12.75	14.37½	16.89	14.76½
Feb.	13.76 ½	12.53	14.38½	15.37½	14.98
Mar.	13.71½	12.56	14.87	14.96	.....
April	13.31	12.41	15.98	15.55	.....
May	12.98	12.32	16.27	15.73	.....
June	12.85½	12.63	17.43	15.08	.....
July	12.62½	12.72	17.37	14.77	.....
Aug.	12.78½	12.70	17.61	15.79	.....
Sept.	12.72	12.57	17.69	16.72	.....
Oct.	12.90	12.47½	17.69	16.81	.....
Nov.	13.00 ½	12.84	17.66	15.90	.....
Dec.	12.92	13.79	17.62½	14.82	.....
Av.	13.12	12.71	16.58	15.70	.....

ELECTROLYTIC COPPER PRICES.

Average monthly prices of Electrolytic Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.68	12.53	14.27	16.75½	14.45
Feb.	13.51	12.48	14.26	15.27	14.67
Mar.	13.42½	12.31	14.78	14.92½	.....
April	12.93	12.15½	15.85	15.48	.....
May	12.67	12.13	16.16	15.63	.....
June	12.59	12.55	17.29	14.85	.....
July	12.36½	12.62½	17.35	14.57	.....
Aug.	12.56	12.57½	17.60	15.68	.....
Sept.	12.49	12.39	17.67	16.55	.....
Oct.	12.77½	12.36	17.60	16.54	.....
Nov.	12.87½	12.77	17.49	15.47	.....
Dec.	12.72½	13.71	17.50½	14.47	.....
Av.	12.88	12.55	16.48	15.52	.....

CASTING COPPER PRICES.

Average monthly price of Casting Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.60	12.39	14.02	16.57	14.27½
Feb.	13.41	12.33	14.02	15.14	14.48
Mar.	13.31	12.20	14.53	14.76	.....
April	12.87	12.07	15.72½	15.33	.....
May	12.62	12.08	16.01	15.45½	.....
June	12.52	12.40	17.08	14.72	.....
July	12.30	12.49½	17.09	14.40½	.....
Aug.	12.48	12.42	17.35	15.50	.....
Sept.	12.46	12.23	17.51	16.31½	.....
Oct.	12.70	12.21	17.41	16.33	.....
Nov.	12.82	12.61	17.34	15.19	.....
Dec.	12.64	13.56½	17.34	14.22	.....
Av.	12.81	12.42	16.29	15.33	.....

VISIBLE SUPPLY OF COPPER.

Visible supply of copper at the end of each month based on the returns of the Copper Producers' Association and H. R. Merton & Company.

1910—	Stocks in American Producers' hands.	European Visible Supply.	Combined Visible Supply.
Jan. ..	98,463,339	348,209,920	346,673,259
Feb. ..	107,187,992	254,139,200	361,327,192
Mar. ..	123,824,874	249,607,680	373,432,554
April ..	141,984,159	246,863,680	388,847,839
May ..	160,425,973	239,265,600	399,691,573
June ..	168,386,017	232,863,680	401,249,697
July ..	170,640,678	222,295,360	392,936,038
Aug. ..	168,881,245	218,413,440	387,294,685
Sept. ..	148,793,714	210,472,640	359,266,354
Oct. ..	139,261,914	198,065,280	337,327,194
Nov. ..	130,389,069	193,200,000	323,589,069
Dec. ..	122,030,195	187,705,280	309,735,475
1911—			
Jan. ..	142,439,490	*236,976,320	379,415,810
Feb. ..	156,637,770	226,210,880	382,848,650
Mar. ..	162,007,934	223,030,080	385,038,014
April ..	165,555,908	212,280,320	377,836,228
May ..	165,995,932	202,413,120	368,409,052
June ..	157,434,164	195,937,280	353,371,444
July ..	137,738,858	192,584,000	330,322,858
Aug. ..	133,441,501	191,215,360	324,656,861
Sept. ..	140,894,856	191,945,600	332,840,456
Oct. ..	134,997,642	176,816,640	311,814,282
Nov. ..	111,785,188	164,151,680	275,936,868
Dec. ..	89,454,695	158,329,920	247,784,615
1912—			
Jan. ..	66,280,643	153,820,800	220,101,443
Feb. ..	62,939,988	141,135,680	204,075,668
Mar. ..	62,367,557	136,808,000	199,175,557
April ..	65,066,029	134,155,840	199,221,869
May ..	49,615,643	117,797,120	167,412,763
June ..	44,335,004	107,817,920	152,152,924
July ..	50,280,421	113,290,240	163,570,661
Aug. ..	46,701,374	113,783,040	160,484,414
Sept. ..	63,065,587	107,403,520	170,469,107
Oct. ..	76,744,964	103,801,600	180,546,564
Nov. ..	86,164,059	96,938,240	183,102,299
Dec. ..	105,312,582	96,857,600	202,170,182
1913—			
Jan. ..	123,198,332	96,546,240	219,744,572
Feb. ..	122,302,198	100,067,520	222,369,718
Mar. ..	104,269,270	†100,965,760	205,235,030
April ..	75,549,108	98,374,720	173,923,828
May ..	67,474,225	90,018,880	157,493,105
June ..	52,904,606	85,559,040	138,463,646
July ..	53,594,945	79,804,480	133,399,425
Aug. ..	38,314,037	76,260,800	114,574,837
Sept. ..	29,793,094	62,314,560	92,107,654
Oct. ..	32,566,382	57,854,480	90,420,862
Nov. ..	47,929,429	59,935,680	107,865,109
Dec. ..	91,438,867	66,124,800	157,563,667
1914—			
Jan. ..	87,296,685	58,284,800	145,581,485

* Hamburg and Rotterdam stocks included.
† Bremen stocks included.

COPPER—LEAD.

of the selling departments have had anything to do.

There has been a small gain in consumers' operations since our last report but the consumption as a whole is still about 25% below normal and if a total recovery occurs before the midsummer dullness sets in it will be all that is expected.

The best feature of the market is the depleted condition of stocks both at home and abroad a condition which may make itself felt later on.

Among the operators the sentiment seems to be that there is nothing in copper right at the moment and that a decline to 14.00c is to be expected but that it is not a good short sale for a long pull.

COPPER PRODUCTION.

Output of domestic refineries:

	1913.	1912.	
Jan...	143,479,625	119,337,753	+24,141,872
Feb...	130,948,881	116,035,809	+14,913,072
Mar...	136,251,849	125,694,601	+10,557,248
April.	135,333,402	125,464,644	+ 9,868,758
May..	141,319,416	126,737,836	+14,581,580
June..	121,860,853	122,315,240	— 454,387
July..	138,074,602	137,161,129	+ 913,473
Aug. .	131,632,362	145,628,521	—13,996,159
Sept. .	131,401,229	140,089,819	— 8,688,590
Oct. .	139,070,481	145,405,453	— 6,334,972
Nov. .	134,087,708	134,695,440	— 607,732
Dec. .	138,990.421	143,354,042	— 4,363,621
Year	1,622,450,829	1,581,920,287	+40,530,542
	1914.	1913.	
Jan.	131,770,274	143,479,625	—11,709,351

COPPER DELIVERIES.

1913—	Domestic Deliveries	Deliveries for Export.	Total Deliveries.
Jan.	65,210,030	60,383,845	125,593,875
Feb.	59,676,492	72,168,523	131,845,015
Mar.	76,585,471	77,699,306	154,284,777
April ...	78,158,837	85,894,727	164,053,564
May	81,108,321	68,285,978	149,394,299
June ...	68,452,571	68,067,901	136,520,472
July ...	58,904,192	78,480,071	137,384,263
Aug.	73,649,801	73,263,469	146,913,270
Sept. ...	66,836,897	73,085,275	139,922,172
Oct.	68,173,720	68,123,473	136,297,193
Nov.	48,656,858	70,067,803	118,724,661
Dec. ...	21,938,570	73,542,413	95,480,983
Year.	767,351,760	869,062,784	1,636,414,544
1914			
Jan. ...	47,956,955	87,955,501	135,912,456

LEAD IN FEBRUARY.

The buyers who bought large quantities of this metal in January on the belief that the price was so cheap that any change in the price would naturally be upwards, held good opinions of their judgment when the Trust raised the price 5c per hundred pounds on February 2nd, but there was a surprise in store for them because only a week later the price was reduced 15c to 4.00c New York. There are one or two people who know why this reduction was made but the majority of the trade, including many of the independent producers, can only guess at the reason. Various theories have been advanced and they all seem to have the one common idea that it was done in order to reduce stocks either by checking the production, increasing consumers' purchases or permitting exports. A more elaborate theory is that the Trust is aiming to put our market on a basis where it will be profitable for them to sell lead of American origin to Europe. The fact that the price in London is now ¼c per pound over the price in New York lends color to this view, and furthermore it is known that domestic lead has been exported for the first time in 30 or 35 years. It is almost amusing to think that less than a year ago there were deputies sent to Washington from the lead districts to protest against the reduction in the tariff from 2⅛c to 25% ad valorem, whereas we are now actually selling lead to our dreaded competitors. The cost to import foreign lead is about 5½c delivered New York as against our present market price of 4.00c.

The American Smelting & Refining Company has been in control of the American lead market since 1900 and except during the end of 1907 and in 1908 their prices have governed the price of more than 80% of all the lead produced and sold in this country. During this time there have been only a few occasions when their official price was as low as 4.00c New York and then only at a time when the price in London was in the vicinity of 2½c to 3.00c. Never before has their price in New York been lower than the market price in London.

The following table gives a comparison of the annual averages and shows how

LEAD.

strangely out of alignment the two markets are at the present time:

(Cents per pound.)

	New York.	London.*	Difference.
1900	4.41c	3.60c	.81c
1901	4.36	2.65	1.71
1902	4.10	2.38	1.72
1903	4.26	2.45	1.81
1904	4.32	2.53	1.79
1905	4.70	2.90	1.80
1906	5.66	3.68	1.98
1907	5.35	4.05	1.30
1908	4.23	2.85	1.38
1909	4.30	2.76	1.54
1910	4.49	2.73	1.76
1911	4.46	2.93	1.53
1912	4.48	3.79	.69
1913	4.40	3.94	.46
Average, 1900-13,	4.54c	3.09c	1.45c
Price, Mar. 2, '14,	4.00c	4.20c	—.20c

*Deducting the 2½% trade discount.

The St. Louis market lately has shown a firmer tone and sellers have become very reserved in the matter of offering figures. Based on the usual forms of comparison the price of lead appears to be very cheap.

REVIEW JOPLIN ORE MARKETS FOR FEBRUARY.

The month proved to be one of much shorter production, extremely good deliveries in the face of conditions prevailing, and higher prices for zinc ores over three-fourths of the month. Coming in with heavy rains, followed by the worst blizzards of the year production suffered severely, especially among the small producers who are especially numerous at this time as compared with a year ago. The severity of the weather in spite of the exceeding activity of producers cut down the weekly shipments in February approximately 250 tons of blende, 50 tons of calamine, and 115 tons of lead weekly from the average of January. This cut in shipments is believed to be much smaller than the real cut in production for buyers exercised exceptional care and energy in getting out all the ore they possibly could during the month. It is true that the worst road conditions of the year were encountered this month but while hauling was more difficult the work of shipping was much more vigorous than usual.

The smaller production and the difficulty of shipment together with higher spelter prices had the effect of increasing the demand and the price of zinc ores the first three weeks of the month. The range of prices went from $37 to $43.50 but closed at the month end with $37 to $41.50. It is significant that these ore prices compare with spelter very favorably, the ratio being very close to eight to one.

As compared with the first two months of 1913, January and February show a very much depressed condition in the zinc mining industry of the district. The decreased shipment of zinc blende amounts to 2,424 tons and of lead ores to 696 tons. There has been, however, an increase of 537 tons of calamine. The decrease in values, however, for the three ores amounts to $682,062 for blende, $9,280 for calamine, and $56,913 for lead, a total of $748,255 or nearly three-quarters of a million dollars loss in but two months of the year. This loss is equivalent to approximately $7 per capita for every inhabitant in the immediate zinc district.

Zinc producers whose cost of production will allow it are straining every nerve to increase their output and in this way overcome as far as possible this loss in price by increased tonnage. There is some chance of this making a better showing during the next three months, providing spring rains are not heavy enough to bring any flood conditions into the district. With conditions as now outlined in the field, the output for the next three months is likely to average close to 5,500 tons weekly. This can hardly be expected to be increased during 1914 unless prices advanced sharply.

Lead ore prices were unchanged throughout February, the prevailing base price being $50. The average was between $49 and $50. Lack of any competition in buying keeps the local market stagnant.

The month's shipments of ore were as follows:

	Tons.	Values.
Blende	19,119	$751,112
Calamine	1,163	24,588
Lead	3,141	156,243

SPELTER.

SPELTER IN FEBRUARY.

The spelter market has shown that it is in no condition to stand a dull spell and since the large buying stopped in the beginning of February the price has dropped back from 5.35c East St. Louis to 5.15c, or within 5c of the lowest price of the year. The complete statistics for 1913 show that the smelters held stocks on December 31st of 40,659 tons as against 36,395 tons on December 15th, and 4,522 tons on December 31st, 1912, but during the sentimental boom of a few weeks ago the question of stocks seems to have been lost sight of and only again came into the limelight when the market had drifted back again into a state of dullness. While the stocks are much larger than ever before they would not be much of a handicap to the market if they were being liquidated, but according to responsible advices there has been no liquidation so far. The best that can be said is that the smelters stopped accumulating with December and have since been able to hold their own.

The smelters maintained their operations at around 70 to 75% of capacity throughout February and the easier market has not brought out any signs of curtailment. The recent buying movement enabled them to make large deliveries last month and March will also be a large month for them, but April will depend on business not yet placed.

As stated above buyers stopped purchasing some weeks ago and the market has since had to rely on spot orders. In the case of spelter there is always a certain amount of this spot business which bears a fair percentage of the total consumption of the country. As a proof of this certain important sellers rarely sell for shipment more than thirty days in advance.

A month ago there were very good reports from the sheet trade but these are now being toned down somewhat and the outlook in this trade is not as favorable as it was. However, the consumption was at a better rate in February than in January, and March should witness a further small gain.

The European market has been featureless and the price has remained nearly stationary at about £21.7.6. The cost to import is 5.62½c delivered Atlantic seaboard, duty paid.

There has been no change in the base price of sheet zinc since January 22, when the price was fixed at 7.25c f.o.b. smelter subject the usual discounts.

The year's shipments of ores, prices and values, compared with the first two months of 1913 were as follows:

Blende ores 1914...	44,190	$39.36	$1,739,168
Blende ores 1913...	46,614	51.94	2,421,230
Calamine ores 1914.	2,861	21.32	61,004
Calamine ores 1913.	2,324	30.34	70,284
Lead ores 1914....	7,531	49.25	370,898
Lead ores 1913....	8,227	52.01	427,811

SPELTER AND LEAD PRICES IN FEBRUARY.

	SPELTER					LEAD				
Day.	New York	St. Louis	London.			New York.	St. Louis.	London.		
1.	....	....	.....			....	....	.....		
2.	5.45	5.27½	21	10	0	4.20	4.06½	20	0	0
3.	5.50	5.30	21	7	6	4.20	4.07½	20	2	6
4.	5.50	5.32½	21	7	6	4.20	4.07½	20	0	0
5.	5.50	5.32½	21	7	6	4.20	4.07½	19	15	0
6.	5.47½	5.30	21	7	6	4.20	4.05	19	10	0
7.	....	....	.....			....	....	.....		
8.	....	....	.....			....	....	.....		
9.	5.47½	5.31½	21	7	6	4.20	4.05	19	12	6
10.	5.47½	5.31½	21	7	6	4.20	4.03¾	19	7	6
11.	5.47½	5.30	21	7	6	4.15	3.97½	19	10	0
12.	....	....	21	7	6	....	....	19	10	0
13.	5.47½	5.28¾	21	7	6	4.02½	3.90	19	7	6
14.	....	....	.....			....	....	.....		
15.	....	....	.....			....	....	.....		
16.	5.47½	5.27½	21	7	6	4.02½	3.87½	19	7	6
17.	5.42½	5.27½	21	7	6	4.00	3.87½	19	7	6
18.	5.45	5.25	21	7	6	4.00	3.87½	19	10	0
19.	5.45	5.25	21	10	0	4.00	3.87½	19	12	6
20.	5.45	5.25	21	10	0	4.00	3.87½	19	10	0
21.	....	....	.....			....	....	.....		
22.	....	....	.....			....	....	.....		
23.	....	....	21	7	6	....	....	19	7	6
24.	5.45	5.25	21	10	0	4.00	3.85	19	7	6
25.	5.40	5.22½	21	10	0	4.00	3.85	19	12	6
26.	5.40	5.20	21	10	0	4.00	3.85	19	15	0
27.	5.40	5.22½	21	7	6	4.00	3.85	19	17	6
28.	....	....	.....			....	....	.....		
High	5.50	5.35	21	10	0	4.20	4.10	20	2	6
Low	5.40	5.20	21	7	6	4.00	3.85	19	7	6
Av'ge	5.45	5.27	21	8	3	4.08	3.95	19	12	2

New York price on lead outside market.

SPELTER.

SPELTER STATISTICS.

The following statistics are taken from the statement issued by the U. S. Geological Survey on March 3rd, which varies slightly from the preliminary statistics issued on January 2nd, in tons of 2,000 lbs.

Production of Primary Spelter in the United States.

(Apportioned according to source of ore.)

Domestic—	1911.	1912.	1913.
Arizona	2,336	4,092	3,152
California	1,099	1,672	2,535
Colorado	12,233	60,841	58,113
Idaho	3,180	6,800	10,190
Illinois	2,884	3,952	1,345
Kansas	6,843	5,668	9,956
Missouri	127,540	149,557	129,018
Montana	22,115	14,196	35,756
Nevada	1,595	6,132	5,828
New Jersey	15,128	16,941	24,247
New Mexico	3,778	6,882	3,765
Oklahoma	2,247	2,041	6,397
Tennessee	1,000	1,935	2,635
Utah	7,004	7,756	9,503
Wisconsin	31,809	34,137	33,743
Other States	830	1,305	1,069
Total domestic	271,621	323,907	337,252
Foreign—			
Canada	1,598	4,199	1,424
Mexico	13,307	10,700	6,205
Europe	.....	.....	1,175
Siberia	.....	.....	620
Total	286,526	338,806	346,676

SPELTER (Monthly Averages.)

	—New York—			—St. Louis—		
	1912.	1913.	1914.	1912.	1913.	1914.
Jan.	6.55	7.23	5.33	6.39½	7.04	5.14
Feb.	6.70	6.49	5.46	6.53	6.25	5.27
Mar.	6.93	6.29	....	6.74	6.08	....
Apr.	6.87	5.79	....	6.66	5.59	....
May	6.89	5.51	....	6.71	5.31	....
June	7.05	5.23½	....	6.85½	5.05	....
July	7.23	5.41	....	7.04	5.23	....
Aug.	7.13	5.80	....	6.94	5.64	....
Sep.	7.55	5.83	....	7.37	5.65	....
Oct.	7.61	5.47	....	7.39	5.27	....
Nov.	7.50	5.34	....	7.32	5.15	....
Dec.	7.36	5.22	....	7.19	5.03	....
Year	7.11	5.80	....	6.93	5.61	....

Production of Secondary Zinc in the United States.

	Secondary Spelter, Redistilled.	Remelted	Recovered zinc in alloys.*
1907	7,050	11,791	1,417
1908	7,159	9,811	665
1909	9,273	23,767	1,181
1910	12,784	38,439	2,709
1911	14,043	26,470	3,223
1912	26,064	26,187	3,912
1913	26,491	23,000	3,600

* Excluding old brass remelted.

Consumption of Primary Spelter in the United States.

Supply—	1911.	1912.	1913.
Stock Jan. 1st.			
In bond	39	31	32
At smelters	23,201	9,049	4,474
Production—			
Domestic	271,621	323,907	337,252
Foreign	14,905	14,899	9,424
Imports	609	11,115	6,100
Total available.	310,367	359,002	357,298
Withdrawn—			
Exports:			
Foreign	11,276	6,286	6,027
Drawback	3,079	1,188	7,459
Domestic	6,872	6,634	7,783
Stock, Dec. 31st.			
In bond	32	48	..
At smelters	9,049	4,474	40,659
Total withdrawn	30,308	18,383	61,928
Apparent consumption	280,059	340,372	295,370

Imports and Exports of Zinc Ore.

	Imports — Ore.	Zinc contents.	Exports. (domestic)
1908	53,757	.....	26,108
1909	114,850	.....	12,455
1910	72,626	25,439	19,711
1911	39,116	15,933	18,281
1912	43,940	17,567	23,349
1913	31,416	13,497	17,713

TIN.

TIN IN FEBRUARY.

The rapid rise in prices which took place in January and which was continued during the first week in February, has been followed by an almost equally rapid decline, and the market at present writing, March 6th, is quoted at 37.75 as against 41.12½c on February 4th and 36.80c on January 2nd. The decline can be attributed to a combination of circumstances which induced the syndicate to withdraw their support from the market and brought about a general selling movement both on the part of the syndicate and also the bear party and outside traders. The circumstances were these:

1. Large shipments from the Straits, due to advance in prices.

2. Increase in visible supplies of over 1,000 tons during February, whereas ordinarily there should have been a decrease in a non-Banca sale month.

3. Small American deliveries into consumption through the delay in arrival of several vessels.

4. Falling off in the demand from American consumers, who had covered most of their nearby and part of their future requirements during the advance in January

5. Strong opposition to the market by prominent trading interests in London.

A month ago nearly everyone was ready to admit that the rise from 36½c to nearly 41½c was more than the situation, or even the change in sentiment, warranted but it was thought at that time that the syndicate had taken a fresh grip on the market and that they intended to play their position for all it was worth. It was hardly expected that they would relax at the first obstacle encountered and yet it seems to be a fact that the interests who engineered the advance a few weeks ago have turned around and are now leading the decline. In an article like tin it makes all the difference whether the manipulation is being exerted for or against the market and no better illustration can be found than what has happened since the first of the year.

The reports from the tinplate industry continue to be very favorable but in other lines business is described as being "spotty." The consumption of tin for tinplate making is quite up to last year's record but the consumption in mixed metals and other uses is probably not over 75% of normal.

Last March the American deliveries were phenomenally large—5,900 tons—this year the total is expected to fall short of 4,200 tons and as the Straits Shipments will be in the neighborhood of 4,500 tons and as there is a Banca Sale of 2,300 tons to be reckoned with the statistics at the end of the month will not make a very good showing.

The market at present is at a standstill—neither the syndicate nor their opponents seem to be decided as to their next move Both are watching America and the Straits, the former for consumption, the latter for the shipments or production. The bears are shy at attacking the market with the

TIN PRICES IN FEBRUARY.

	New York.	London — prompts.	London — C. I. F.
	Cts.	£ s d	£ s d
1	.....	.....	.....
2	40.62½	185 5 0	186 5 0
3	40.37½	184 5 0	186 0 0
4	41.12½	187 10 0	188 5 0
5	41.00	185 15 0	190 15 0
6	41.00	185 5 0	188 0 0
7	...	.....	.....
8	....	.....	.....
9	40.45	182 15 0	187 5 0
10	40.87½	184 15 0	184 15 0
11	40.70	184 5 0	186 17 6
12	...	183 10 0	186 10 0
13	40.60	184 0 0	185 5 0
14	...	.....	.....
15	....	.....	.....
16	40.37	183 0 0	186 0 0
17	39.85	181 0 0	185 5 0
18	39.35	178 15 0	183 0 0
19	39.80	180 17 6	181 10 0
20	39.25	179 0 0	182 7 6
21	...	.....	.....
22	...	.....	.....
23	.....	175 15 0	180 17 6
24	38.70	175 15 0	178 10 0
24	38.70	175 15 0	178 10 0
26	38.45	174 15 0	176 0 0
27	38.00	173 5 0	177 10 0
28	.....	.....	.....
High	15.25 14.85	14.65 66 15 0	71 10 0
Low	.... 38.00	172 15 0	176 0 0
Average	....	181 3 1	187 18 11

TIN.

MONTHLY TIN STATISTICS.

Compiled by New York Metal Exchange.

	Feb. 1914	Jan. 1914.	Feb. 1913.
Straits shipments:			
To Gt. Britain..	4,263	3,260	2,585
" Continent ..	665	775	505
" U. S.	1,597	1,200	1,579
Total from Straits	6,525	5,235	4,669
Australian shipments:			
To Gt. Britain..	175	325	200
" U. S.	nil	nil	nil
Total Australian.	175	325	200
Consumption:			
London deliveries	1,609	1,634	1,765
Holland deliveries	1,258	1,208	1,308
United States*...	3,300	3,600	3,500
Total	6,167	6,442	6,573
Stocks at close of month:			
In London	3,473	4,209	1,361
" " (Stand.)	1,868	1,385	†
" Holland	1,172	2,181	467
" United States*	1,554	1,834	1,951
Total	8,067	9,609	3,779
Afloat at close of month:			
To London	4,696	3,902	3,598
" Holland	183	183	183
" United States*	4,362	2,550	4,744
Total	9,241	6,635	8,525
	1914.	1914.	1913.
Total visible supply	Feb. 28, 17,308	Jan. 31, 16,244	Feb. 28, 12,304

* Exclusive of Pacific ports.
† Not reported.

TIN AND SILVER. (Monthly Averages.)

	New York					
	Tin			Silver		
	1912.	1913.	1914	1912.	1913.	1914.
Jan.	43.24	50.45	37.74	56.22	62.93	57.56
Feb.	43.46	48.73	39.93	59.04	61.64	57.50½
Mar.	42.86	46.88	.....	58.37	57.87	.....
Apr.	44.02	49.12		59.23	59.49	
May	46.12	49.14	.....	60.88	60.36	.....
June	47.77	44.93	.....	61.29	58.99	.....
July	44.75	40.39	.....	60.66	58.72	.....
Aug.	45.87	41.72	.....	61.61	59.29	.....
Sep.	49.18	42.47	.....	63.08	60.64	.....
Oct.	50.11	40.50	.....	63.47	60.79	.....
Nov.	49.90	39.81	....	62.79	58.99	.....
Dec.	49.90	37.64		63.37	57.76	.....
Year	46.43	44.32		60.83	59.79½	

VISIBLE SUPPLIES.

Total visible supply of tin at the end of each month.

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	21,895	23,024	18,616	16,707	13,971	16,244
Feb.	20,746	21,288	17,260	14,996	12,304	17,308
Mar.	19,208	20,203	16,682	15,694	11,132	.....
Apr.	18,825	17,932	14,441	11,893	9,822	.....
May	19,208	18,998	15,938	14,345	13,710	.....
Jun.	18,208	15,700	16,605	12,920	11,101	.....
July	20,244	17,433	16,707	13,346	12,063	.....
Aug.	19,182	17,943	16,619	11,285	11,261	.....
Sep.	21,419	18,999	16,672	13,245	12,943	.....
Oct.	18,724	18,183	14,161	10,735	11,857	.....
Nov.	20,025	18,875	16,630	12,348	14,470	.....
Dec.	20,918	17,194	16,514	10,977	13,893	.....
Av.	19,883	18,815	16,404	13,207	12,377	.....

SHIPMENTS FROM THE STRAITS.

Monthly shipments of tin from the Straits Settlements to Europe and the United States, as per Powell's returns:

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	5,733	5,895	4,290	4,018	6,050	5,290
Feb.	4,033	4,147	4,290	5,260	4,660	6,520
Mar.	3,380	2,877	4,510	5,150	4,810	.....
Apr.	4,904	4,025	3,140	4,290	4,400	.....
May	5,184	4,965	4,310	5,760	6,160	.....
June	4,618	4,120	5,050	4,290	4,820	.....
July	5,644	5,040	4,660	4,580	4,770	.....
Aug.	4,702	5,700	4,680	5,210	6,030	.....
Sep.	5,081	4,220	5,150	5,430	5,160	.....
Oct.	3,801	4,480	4,350	4,450	5,020	.....
Nov.	5,510	4,840	5,070	5,600	5,560	.....
Dec.	5,835	4,270	5,970	4,980	5,110	.....
	58,425	54,579	55,470	59,018	62,550	
Av..	4,869	4,548	4,622	4,918	5,213	

CONSUMPTION IN THE UNITED STATES.

Monthly deliveries of tin in the United States exclusive of Pacific Coast.

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	3,200	3,500	3,200	3,700	3,700	3,600
Feb.	2,700	3,600	3,800	4,050	3,500	3,300
Mar.	3,900	4,000	5,100	4,000	5,900	.....
Apr.	3,200	4,100	3,300	5,400	3,450	.....
May	3,900	3,600	3,400	4,250	3,350	.....
June	3,200	5,000	2,900	2,850	3,800	.....
July	3,600	3,800	4,300	5,150	3,900	.....
Aug	3,300	3,700	3,800	4,300	3,600	.....
Sep.	3,200	3,300	4,200	3,600	3,100	.....
Oct.	4,100	3,350	3,500	3,850	3,700	.....
Nov.	4,000	3,800	3,100	4,300	2,800	.....
Dec.	3,200	3,600	3,700	4,050	3,100	.....
	41,500	45,350	44,300	49,500	43,900	
Av..	3,458	3,779	3,692	4,125	3,658	

ALUMINUM—ANTIMONY

Tin In February—Continued.

price 3c per pound less than a month ago and remembering the ease with which the market was advanced from 36½c to 41c and the bulls evidently do not like the statistical outlook or the business situation in America.

There is nothing in tin on the present statistical position or nearby outlook. An advance can only come from syndicate activity or from continued large American buying.

We publish below the daily price fluctuations during the month of February and on the next page will be found a digest of the statistics.

ANTIMONY IN FEBRUARY.

The antimony market was in a dull and listless state during January and while prices showed little change the tendency was downwards. The average price of Cooksons for the month was 7.24c as against 7.31c in January, and this was the fifteenth successive month to show a decline.

Halletts remained unchanged at 7.00 and the ordinary brands were quoted at 6.00 on the spot and 5.85 to 6.00 for futures.

ALUMINUM IN FEBRUARY.

Nothing has happened during the past month to relieve the monotony of the aluminum market and a nominal quotation of 18½ to 19c was maintained. The indications are that what business there was went at a lower price than the nominal quotation and nearly all of it went to the domestic producer.

The importers have not been able to do anything so far this year, excepting a few scattered sales, and their European principals do not seem willing to quote a price that will land the orders. The price would have to be around 16 to 16⅛ c.i.f. New York but they are still holding out for 16½c.

The automobile makers are busy again but there is some fear that they are going to have a short season this year.

The average price of prompt aluminum was 18.80c in February as against 18.75c in January and 26.20c in February, 1913.

ALUMINUM, ANTIMONY AND SILVER IN FEBRUARY.

		—— Antimony ——			—Silver—	
	Aluminum.	Cook-sons.	Hal-letts.	Hun-garian.	New York.	Lon-don.
Day.	Cts.	Cts.	Cts.	Cts.	Cts.	d.
1.	.....	....	....	....	....	....
2.	18.87½	7.22½	7.00	6.05	57¾	26 11/16
3.	18.87½	7.22½	7.00	6.05	57⅝	26⅝
4.	18.87½	7.22½	7.00	6.05	57⅝	26½
5.	18.87½	7.22½	7.00	6.05	57⅝	26½
6.	18.87½	7.25	7.00	6.00	57½	26⅝
7.	.....	....	....	....	57⅝	26⅝
8.	.....	....	....	....	....	....
9.	18.87½	7.25	7.00	6.00	57¾	26 11/16
10.	18.87½	7.25	7.00	6.00	57½	26⅝
11.	18.87½	7.25	7.00	6.00	57½	26⅝
12.	.....	....	....	....	....	26⅝
13.	18.87½	7.25	7.00	6.00	57⅝	26½
14.	.....	....	....	....	57⅝	26½
15.	....	....	....	....	....	....
16.	18.87½	7.25	7.00	6.00	57⅝	26½
17.	18.87½	7.25	7.00	6.00	57⅝	26½
18.	18.87½	7.25	7.00	6.00	57⅝	26½
19.	18.87½	7.25	7.00	6.00	57½	26⅝
20.	18.62½	7.25	7.00	6.00	57½	26⅝
21.	.....	....	....	....	57½	26⅝
22.	....	....	....	....	....	....
23.	.....	....	....	....	....	26 11/16
24.	18.62½	7.25	7.00	6.00	57⅝	26⅝
25.	18.62½	7.25	7.00	5.95	57½	26⅝
26.	18.62½	7.25	7.00	5.95	57½	26⅝
27.	18.62½	7.25	7.00	5.95	57½	26⅝
28.	.....	....	....	....	57⅝	26⅝
High	19.00	7.25	7.00	6.10	57¾	26 11/16
Low.	18.50	7.20	7.00	5.90	57⅝	26½
Av'ge	18.81	7.24	7.00	6.00	57.51	26.57

COMPOSITE METAL PRICES.

Monthly averages.

	1910.	1911.	1912.	1913.	1914.
Jan. ..	**9.084**	8.908	9.778	10.987	9.105
Feb. ..	8.881	8.915	9.677	10.260	9.294
Mar. ..	8.778	8.797	9.886	10.024	.....
April .	8.568	8.795	10.277	10.198	.....
May ..	8.413	8.795	10.468	10.163	.....
June ..	8.362	9.154	11.014	9.648	.....
July ..	**8.338**	9.100	11.043	9.398	.....
Aug. ..	8.479	9.188	11.092	10.025	.....
Sep. ..	8.569	8.928	11.575	10.350	.....
Oct. ..	8.747	8.990	11.596	10.029	.....
Nov. ..	8.888	9.306	11.372	9.590	.....
Dec. ..	8.881	9.675	11.219	9.053	.....
Year..	8.665	9.046	10.750	9.977	.....

NEW INCORPORATIONS

New York.

The Stanwear Mfg. Company, Rochester, N. Y., has filed incorporation papers with a capital stock of $30,000, to manufacture special machinery and metal specialties. A factory will be equipped for the purpose. V. H. Askarian, A. M. Ballarian and F. B. Taylor, Rochester, are the incorporators.

The Mohawk Valley Mfg. Corporation, Oneida, N. Y., has been incorporated with a capital stock of $50,000 to do a general foundry and iron manufacturing business. A. G. & I. J. Snyder and L. Schneider, Oneida, are the incorporators.

The Bigas Co., Elmira, N. Y., has been incorporated with a capital of $10,000. The manufacture of a flux for treating Copper, Brass, Bronze, Aluminum and non-ferrous metals will be carried on. The offices are located at Elmira, N. Y., and the laboratory and plant are at Bridgeport, Conn.

Southern States.

The Henry Fire Apparatus Co., Tampa, Fla., has been incorporated for $2,000,000 and are to build three buildings 85 x 200 feet estimated to cost $75,000. Foundry equipment and lathe machinery will be installed.

Michaels Art Bronze Co., Covington, Ky., has been incorporated; $30,000; by F. L. Michaels, Maurice L. Galvin, P. G. Queal.

Pennsylvania.

United States Hardware Mfg. Co., Philadelphia, Pa., has been incorporated; $5,000; by H. D. Mousley, Charles J. Waugh and C. C. Hocker, Philadelphia.

The Myerstown Foundry & Mfg. Co., Myerstown, Pa., has been incorporated; $10,000; by Leighton F. Krum, Edward Karsnitz, Frank Lutz.

Western States.

The Duluth Welding & Mfg. Co., Duluth, has been incorporated to conduct a tool manufacturing business; $50,000; John A. Keyes, President; C. R. Keyes, secretary-treasurer; J. H. Engle, vice-president.

Missouri.

The Western Wire Products Company, St. Louis, Mo., has been incorporated with a capital stock of $75,000 by Ira J. Young, John P. Klein, Henry Reichmann and others to manufacture wire weaving, knitting machines and wire, iron and steel working machines.

The Continental Boiler & Sheet Iron Works, St. Louis, Mo., has been incorporated with a capital stock of $14,000 by George F. Kerwin, John W. O'Brien and Edward G. Borneman, to manufacture boilers, tanks, stacks, etc.

Canada.

The St. Johns Machinery & Tools Co., Ltd., St. Johns, Canada, has been incorporated to manufacture tools; $45,000; by O. Bard, E. Pattenaud, A. N. Deland, all of St. Johns.

J. A. Major, Ltd., Montreal, has been incorporated with a capital stock of $50,000, by Antoine Marchand, Joseph A. Guitard, and others, to build bridges, etc.

The E. E. Wallace Company, Ltd., Toronto, has been incorporated with a capital of $40,000, by Harris E. Wallace, John A. Christilaw, and others, to manufacture dairy and farm products, etc.

Michigan.

The Detroit Universal Wire Wheel Company, Detroit, Mich., has been incorporated with $10,000 capital stock to manufacture automobile wheels. George E. Goble and Wm. N. Edson are principal stockholders.

The Enterprise Electro Plating & Mfg. Company, Detroit, Mich., has been incorporated with a capital stock of $5000. Frank W. Hyer and Charles G. Bennett are the principal incorporators.

Indiana.

V. M. Nussbaum & Co., Ft. Wayne, Ind., have been incorporated with a capital stock of $10,000, to manufacture machinery. The directors are V. M. Nussbaum, L. P. Nussbaum and J. W. Thompson.

The Steel Hub & Forge Company, Connersville, Ind., has been incorporated with a capital of $40,000 to engage in the manufacture of steel wheel hubs. Company was organized by E. W. and W. M. Anderson.

Illinois.

Elgin Sheet Metal Products Company, Elgin, Ill., has been incorporated with a capital stock of $5000 to engage in the sheet metal business. The incorporators are Conrad Ekvall, E. O. Ekvall and others.

The Atterberry-Hertel Mfg. Company, Springfield, Ill., has been incorporated with a capital stock of $125,000, to engage in the manufacture of plows, furnaces and iron and steel castings. The organizers include H. T. Hertel, H. E. Atterberry and W. C. Moorhead.

TRADE NOTES.

The National Metal Coating & Lithographing Company of Elizabeth, N. J., manufacturer of metal coating, lithographing metal, etc., is building additions to its factory. It is in the market for shears, power presses, lithographing presses, etc., all second hand and in good condition.

The Monroe Dairy Supply Company of Sussex, N. J., manufacturer of milk pasteurizers, coolers and retarders, is making extensive improvements to its factory and is in the market for some of the following machines: punches, presses, lathes, drills, slitting machines, bending machines, squaring machines, bar cutters, and miscellaneous small metal working machines. J. D. Haggerty is president.

The H. J. Nelson Machine Company of Green Bay, Wis., has been reorganized and will be hereafter the Nelson-Indra Machine Company, indicating the entrance of Louis G. Indra into the business. The company will increase its machine equipment for the better handling of its increased repair business.

The American Nut Lock Company, a new corporation, has established its headquarters at Waterville, Me., with offices at 142 Main street. For the present manufacturing will be carried on at a foundry in Rockland, Me.

The A-1 Metallic Products Company of Cleveland, has been organized with a capital stock of $10,000 by James C. Thatcher, and others. The company will have quarters in the building occupied by the Burke Valve Company on Windsor avenue.

The National Automatic Machine Company of Battleboro, Vt., are installing a nickel and silver-plating plant. This company states that their plant is strictly up to date, and that they use the plating plant in connection with their own work as well as doing outside work.

The Pantatello Company has moved from Detroit, Mich., to Lorain, Ohio, where it has established a plant for the manufacture of stove pipe and for doing light sheet and tin work.

The Interstate Motor Company of Muncie, Ind., has been reorganized with a capital stock of $300,000 to manufacture automobiles. The directors are F. C. Ball, E. B. Ball and B. W. Twyman.

The Steele Engine Co. of Kewaunee, Wis., recently incorporated, will engage at once in the manufacture of a line of internal combustion engines of the rotary valve type for automobiles and a poppet-valve motor of the two-cylinder type for general utility and farm use. The company has taken over the plant of the Storle Valve Co., which was established several years ago by O. O. Storle, who is head of the new company, and the foundry of the Ziemer Iron Works has also been purchased. Officers have been elected as follows: President, O. O. Storle; vice-president, O. L. Pierpont; secretary and treasurer, H. O. Brandenberg, of Appleton, Wis.

The Michigan Bridge & Iron Company of Lansing, Mich., announces that it will double the capacity of its plant this spring with the intention of enlarging its structural shape department in addition to its present large pipe business. The additions have already been begun. George E. Burhaus, formerly in the banking business, has become associated with the company in an official capacity.

Giles & Nielsen Nickel Works, have moved from 1931 Sixth Ave., Troy, N. Y., and are now located in new quarters on Front street.

A. C. Dallas & Son, Inc. of Chicago, moved into their new building 223-231 North Jefferson street, where they will carry a complete stock of brass and copper sheet, rod, wire and tubing, and will also extend their manufacturing department.

The Laib Company of Louisville, Ky., manufacturer of plumbing supplies, whose buildings were damaged by fire, is building a new factory. 100 x 530 ft., on Eighteenth street. It will be completed in about six weeks. New piping machinery may be required.

The works of the Hammar Brothers White Lead Co. of St. Louis, at East St. Louis, Ill., were destroyed by fire last week. The corroding department was entirely destroyed. The loss was about $250,000. Plans for replacement are under way.

The plant of the Aluminum Goods Co. of Two Rivers is to be enlarged. A 3-story fireproof building, for buffing, finishing and storage, will be erected; a 500-horsepower turbine installed in the power house, and the drive changed to electric motors throughout, save in the rolling mill.

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THE BUSINESS SITUATION.

The developments in business during the past month have been very disappointing and unsatisfactory.

All the unfavorable features noted in our March **Digest** on business conditions remain unchanged and in some cases intensified, with the exception of a decline in Copper having been changed into an advance of about ½c per pound. As this was accomplished only by extraordinary exports to Europe for which it is believed there was no legitimate reason, we are doubtful if the Copper situation can be considered as having improved. On the other hand two items in our favorable list last month have had to be withdrawn and added to the unfavorable, namely our basic industry, iron and steel, has changed from improvement to deterioration, and the political situation abroad, has become disturbed in England, Paris and Brazil. The business situation as a whole has lost ground, and in every direction there are signs of depression.

It is an old saying proved true by past experience that trade with us usually takes on new life in March, when the sap starts to run in the Spring, and there is every certainty, that especially after the dormant business conditions of the past six months, such would have been the case this year, had there not been abnormal and extraordinary reasons to prevent. What have been those reasons? What is the matter with business?

It Is A Nervous Trouble, Not Fundamental.

In physiology we first in the case of disturbed conditions, examine the outward phenomena, and from that data proceed to search for and locate the hidden cause. The doctor examines the outward evidences

EDITORIAL.

of sickness, and accepts it as a guide by which to locate the cause and apply the necessary treatment to restore the patient to health.

Business shows every evidence of sickness, but our Washington physicians seem to be either attempting to treat something they know nothing about, or else have ignored outward signs, and having decided on a drastic plan of experimental physicing of their own, are bent on carrying it out to the bitter end, although they see the patient getting more feeble and distressed each day.

Business is sick, disturbed and depressed, confidence is lacking, all which is a condition of affairs entirely foreign and unnatural to our normal American business life. An examination fails to bring into sight any physical or fundamental cause.

It is a nervous trouble, a state of mind, not a state of matter. But mind rules matter, and sentiment is all powerful in its effect on physical business. Why? Because business is inert except as the individual mind puts it into activity, and is subject therefore to human influences and laws. Some of these laws are that fear generates caution, disappointment creates depression, uncertainty makes for doubt, and these things are extremely infectious, for the reason that it is another law that we are influenced by our surroundings.

Business is cautious from fear of anti-trust and railroad legislation, and the attitude of hostility to capital and big business, depressed over the disappointment at the fading away of the promising outlook on these matters in January, that Spring has brought no revival in trade, and that the splendid start we made in January must be recorded as a false one, while doubt as to the future and the wisdom and efficiency of our rulers has returned with all its paralysing effect on capital and enterprise.

Subject to Sudden and Violent Change.

Unfortunate and depressing as the situation is, it is one that from its very nature is subject to a sudden change. Were our troubles caused by bad fundamental conditions, it would take time for such conditions to be restored, and there are conditions such as those following a panic where considerable time must elapse until previous excesses and the shock and deterioration of collapse had been recovered. Bad harvests, the waste and loss of war, and overproduction, all require time to recover from. But it is none of these fundamental things that have made business stagnant. As we said we are suffering from mental apprehension, disappointment and doubts. These are things that can disappear very quickly were the cause for them removed.

Theoretical Inexperience vs. Business.

The legislation proposed is not on questions of divided political opinion. That was closed with the passage of the Tariff Bill, and as regards the new Tariff, while it has lessened profits in many industries, it has closed no factories through the competition of foreign goods. It has caused no discouragement, but rather created efforts to overcome obstacles, feeling that where some individual profits suffer, the population as a whole is a gainer. The whole matter is a question of theoretical inexperience versus business experience and actual knowledge.

Why is the Railroad Rate Important?

While the cultivation of the soil is our greatest industry, that thank goodness is removed from legislative control, and depends on Mother Earth, rain and sunshine, and human industry, but our next largest industry is the railroads, the largest buyer of manufactured commodities, and a buyer who does not re-sell anything but service, and dependent on its power to buy by its ability to pay. Affairs with the railroads have reached a crisis. We are starving ourselves by refusing the railroads the rate increase, and demoralizing not only the transportation service on which we are dependent, but every other line of business which depends on normal railroad buying. Washington is not smashing our plutocrats, they saw trouble coming and hold to-day smaller interests in railroads than any time in our history.

It is not the fifty million dollars that the rate increase is estimated would benefit the railroads, the business of the country is losing much more than this every week in paralyzed business and unemployment. It is for a settlement of the question whether the Government can hold up

EDITORIAL.

the natural laws of trade, in this case the right of capital to get a fair return for its investments.

Nearing a Logical and Favorable Decision.

It does not seem possible that the demands and interests of business and the entire wage earning community outside of the farming interests, can much longer be paltered with.

We are witnessing a rising flood of protest, which is now finding expression not only in the ranks of business, but of labor, under the lash of unemployment. that will serve to make the Interstate Commerce Commission realize how imperative it is that they render an early decision in the freight rate case. A few weeks ago it seemed to be the intention to defer the decision until September but the present outlook is that the matter will be definitely settled within one month.

Outlook Portends Greater Activity.

It is because the disturbed condition of business is largely a mental one that we feel optimistic about the future. It is in the power of Washington to change this condition in almost a moment. The granting of an advance in railroad rates and the abandonment of further efforts to regulate business, would result in a change in sentiment that would sweep the entire country into the greatest business activity, and there would be a rush to make up for the months of delayed enterprise. Surely it is not possible that we have delivered ourselves into the hands of servants who cannot be made amendable to the will of their masters, the public, which at present is so clearly expressed.

THE STEEL RAIL INDUSTRY.

The significant features of the rail production statistics, which are given in full elsewhere through the calendar year 1913 are:

(1) Continued failure to break the tonnage record of 4,000,000 gross tons made in 1906. The 1913 production, although representing a gain of 5 per cent over 1912, was only 3,500,000 tons.

(2) Such rapid decrease in Bessemer rail production that last year's output of Bessemer was less than 25 per cent of the total, while in rails weighing 85 lbs. and over per yard the Bessemer proportion was only 12 per cent.

(3) Decrease in alloy steel rail production to negligible proportions, only 59,519 tons in 1913 against 257,324 tons in 1910.

All the indications are that the rail of the future will be simply a straight basic openhearth rail, made without alloy and depending for safety and durability upon proper proportions of the metalloids and upon the method of manufacture. For heavy service the rail will probably weigh 90 to 100 lbs. per yard. In recent years the trend has been towards a heavier average weight, but at the recent Chicago convention of the railroad experts the sentiment expressed was distinctly not in favor of increasing the section above 100 lbs.

For several years it has been plain that rails are no longer the dominant finished steel product. The time was that rail production measured or indicated the general volume of railroad buying of steel, and as the railroads took nearly half the total iron and steel output rail demand came very near being the barometer of steel trade activity. In recent years rail demand has not been increasing, whereas other demand has greatly increased. In 1913 we made 18 per cent more pig iron than in 1906, seven years earlier, but 12 per cent less rails.

At certain periods in the past rail demand comprised a very large proportion of the total steel demand, on account of the railroads passing through special periods in their development. In the eighties it was the building of new line. In the earlier years of the present century it was the building of subsidiary track, and the relaying of much track in heavy rails because the heavier rolling stock had made the old light rails unserviceable. Given standard rails, suitable for the present rolling stock, the present volume of railroad traffic will not wear out rails at the rate of more than about a million tons a year. Another million tons, in 90 lb. rails, will lay 7,000 miles of additional track. With half a million tons for industrial uses and electric lines, and another half million for export, there is about three million tons, representing the average minimum requirements of the country. Anything above this will make a fairly good rail year, just as 1913 was a fairly good one with 3,500,000 tons, even though it fell short of the 1906 record by half a million tons.

DIGEST OF BUSINESS CONDITIONS.

FAVORABLE.

1.—**Crop outlook** could not be better, large acreage and ideal soil condition.

2.—**Easy money market** and growth of individual deposits favors expansion in investment activities when general business confidence is restored. The condition of the national banks as of March 4th showing total reserves of the 7,494 national banks as $1,547,592,375, an average of 20.62 per cent, and $47,529,429 above the amount required to be held.

3.—**Currency law** will operate in direction of expanded credit, and afford means and opportunity for doing a big business, as in the case of easy money when business enterprise and confidence is restored.

4.—**Reason for believing that railroads will be granted a rate increase**—President Wilson reported to consider it fully justified, which is certainly the conclusion the business world has reached.

5—It is believed that the universal protests of the Chambers of Commerce and various business Associations of the country against the so-call **"Five Brothers Anti-Trust Bills"** has made an impression on the Administration, and that at an early date it will be proved that most of the dangers and objectionable features of these bills have been dropped or considerably lessened.

6.—**Fewer labor troubles** threatened than usual at the opening of Spring. Labor generally has been chastened by the unemployment so much in evidence, and as individuals are showing more concern regarding holding their persent employment, than making any efforts to decrease their hours of employment or getting a wage increase. The fact that the organs that pander to these classes have completely stopped their muck-raking campaign against trusts, big business and capital, proves that their readers are tired of the subject, since they find the so-called "uplift" and "restoration of the rights of the individual" have created neither improved wages nor opportunities, or lowered their cost of living, but has in many cases brought about disturbed conditions that has left him without any employment.

UNFAVORABLE.

1.—**Depressed and disappointing mental condition** of business caused by railroad and anti-trust legislation, that the advent of Spring has failed to bring usual activity, and that the start of business to improve in January was a false one. Enterprise is dead, and depressing fear and doubt has paralyzed the energies of our merchants and manufacturers. This mental condition is the most unfavorable feature at present. It could however, be quickly changed, were the causes that have created it removed. Meanwhile it possesses business, and is directly responsible for other unfavorable physical features that follow as the result.

2.—**Delay in railroad rate decision,** and fear that when made it may not be sufficiently adequate. The point has well been made that the tariff and currency laws were passed in half the time that the railroad rates have been under discussion.

3.—**The railroad crisis** that is developing from decrease in earnings, and caused by increased cost of living (materials, wages, taxes). The consequent unattractiveness of their loans or securities, with the investing public, and since a cut in wages is impossible, lessened service, laying off of employes, and intense economy in purchases and improvements, follows as a matter of necessity.

4.—**Iron and Steel.**—The improvement in trade of January-February changed to falling off in orders, and weakening prices. The next statement of the U. S. Steel from recent increases in unfilled orders will show a substantial decrease. Instead of increasing operations as should be expected at this time, mills are facing reduced operations unless a great change takes place in demand for their products during next two months.

5.—**Prospects of foreign political complications have increased abroad.** The extraordinary and dangerous situation in England, unfavorable developments in Paris and Brazil, and the Mexican situation darker than ever.

6.—**Unemployment increasing** and in spite of the opening of Spring, worse than in midwinter, as result of business depression. This unemployment in the iron and steel trade and almost every line of manufactures would be even greater were it not for the

UNFAVORABLE.

extraordinary efforts being made by manufacturers to employ their hands around their mills in some way or other, as best they can, hoping to keep their labor organization together, in the hope that the expedients being now employed to that end will soon be unnecessary.

Efforts being made by state and cities to relieve the situation meet with little success, conditions that are responsible being too fundamental to be reached by mere pallatives. Meanwhile the buying power of the community is being heavily curtailed by the unemployment.

7.—**Business failures** increasing, while they should show a decrease as natural after the turn of the year being past. If present business depression is continued failures are certain to grow, as many are running at a loss.

8.—**Taxation and expenditures** for Government and civic purposes increasing. There is no such thing as a rich government. The money spent has to come from the taxpayers. The lower the taxes the more the public has to spend, and the lower their business profit the harder the tax bears on the public.

COMMERCIAL FAILURES.

"Bradstreet's" says that for the first three months of the current year failures number 4,205, an increase of 7.4 per cent over the like first three months of 1913, of 4.8 per cent over the first quarter of 1912, and a slight fraction of 1 per cent larger than the like period of 1908. Compared with the first quarter of 1896, the decrease is 6.8 per cent. Liabilities for the first three months this year aggregate $79,882,007, an increase of 23 per cent over the like period of 1913, but a decrease of 28 per cent. from the first quarter of 1908.

In the following table will be found the failures monthly and quarterly for the first three months of the past two years:

1914.	No. of failures.	Assets.	Liabilities.
January	1,729	$20,421,273	$35,196,682
February	1,206	10,820,258	20,159,736
March	1,270	13,136,015	24,525,589
First quarter	4,205	$44.377,546	$79,882,007
1913.			
January	1,566	8,404,342	15,619,192
February	1,114	16,159,858	29,802,170
March	1,235	8,308,715	19,411,481
First quarter	3,915	$32,872,915	$64,832,843

THE STOCK MARKET.

Transactions in stocks on the New York Stock Exchange for the month of March were the smallest for the third month in any year since 1897. The total trading amounted to 5,862,153 shares, a decrease of 370,720 shares as compared with the previous month and 1,321,169 as compared with the corresponding month last year.

Bond transactions on the Exchange for March amounted to $60,053,500. This is a decline of $9,541,500 from February and of $28,263,000 from January. In March, 1913, the total was $40,144,000 and in 1912, $66,-684,000. Bond sales during the three months of 1914 were $217,965,000; this is $76,176,000 more than the first three months of last year and also exceeds the aggregate for the last six months of 1913 by $12,980,000.

The sixth of March was the only day during the month on which the stock sales amounted to over four hundred thousand shares, while in February there were four such days and in January eleven.

The total bond transactions also were largest on the sixth, which was the only day on which the sales exceeded $3,000,000.

The subjoined table shows the transactions in stocks for the month of March during a series of years:

Stocks, Shares.

	March.		March.
1914	5,862,153	1906	19,329,949
1913	7,183,322	1905	29,062,450
1912	14,548,838	1904	11,418,972
1911	6,920,788	1903	15,020,632
1910	14,991,901	1902	11,954,602
1909	13,649,919	1901	27,001,677
1908	15,594,538	1900	14,447,287
1907	32,250,842		

Bonds, Par Value.

The March figures covering bond transactions since 1900 follow:

	March.		March.
1914 ...	$60,573,000	1906 ...	$53,133,900
1913 ...	40,417,000	1905 ...	104,154,200
1912 ...	68,912,500	1904 ...	46,770,500
1911 ...	63,979,000	1903 ...	51,886,500
1910 ...	75,491,800	1902 ...	66,952,200
1909 ...	85,753,000	1901 ...	132,491,020
1908 ...	62,991320	1900 ..	68,916,640
1907	53,958,500		

BUSINESS TRENDS.

OUR FOREIGN TRADE.

The Bureau of Statistics at Washington has made public its returns on the country's foreign trade for the month of February. The reports showed exports of merchandise to have been $173,808,468, a decrease from the previous month and a year ago. Imports were little changed as compared with a month and a year ago.

The February returns are compared in the following table with the returns of the same month last year:

	Feb. 1914.	Feb. 1913.
Exports	$173,808,468	$193,996,942
Imports	149,937,011	149,913,918
Excess exports.	$23,871,457	$44,083,024

BUILDING OPERATIONS.

The total expenditure at 140 cities as reported to Bradstreet's for February was $50,752,438, as against $48,551,800 in January this year and $61,461,365 in February a year ago. There is here shown an increase of 4.4 per cent over January, but a decrease of 17.4 per cent from February a year ago, with 75 cities of the 140 showing decreases from February, 1913. Bearing upon last month's showing as compared with the like month last year, it might be noted that February, 1913, showed an increase of 18.7 per cent over February, 1912, and the like month in turn showed a gain of 27.4 per cent over February, 1911.

The record of building expenditures at leading American cities, according to Bradstreets, reporting monthly, quarterly and yearly from January, 1912 down to and including February, 1914, shows the ebb and flow in the building industry in the past 26 months, as follows:

Cities.		1913.	1912.		
Jan.	145	$54,340,563	$48,692,024	I.	11.6
Feb.	145	61,141,275	51,494,295	I.	18.7
Mar.	146	81,220,557	79,409,845	I.	2.2
1st quarter		196,702,395	179,596,164	I.	9.5
Apr.	145	96,918,246	103,189,722	D.	6.0
May	146	88,706,252	95,008,769	D.	6.6
June	146	80,859,953	96,958,920	D.	16.6
2d quarter		266,484,451	295,157,411	D.	9.7
Six months		463,186,846	474,753,575	D.	2.4
July	145	75,501,375	87,580,278	D.	13.7
Aug.	146	63,720,880	83,462,183	D.	23.6
Sep.	143	76,720,050	68,680,476	I.	11.7
3rd quarter		215,942,305	239,722,967	D.	10.0
9 months.		679,129,151	714,476,512	D.	5.0
Oct.	144	63,035,385	73,128,886	D.	13.8
Nov.	145	50.405,703	71,176,911	D.	29.1
Dec.	146	67,409,818	72,180,455	D.	6.6
4th quarter		180,847,906	216,486,252	D.	16.4
Year		859,977.057	930,962,764	D.	7.6
		1914.	1913.		
Jan.	146	45,999,862	55,514,979	D.	17.1
Feb.	140	50,752,438	61,461,365	D.	17.4

NEW INCORPORATIONS.

Owing to business inertia the promotion of new enterprises continues disappointing, although the total incorporations for March were slightly above those for February. Papers filed in the Eastern States last month for new companies with $1,000,000 or over, including increases in capital, represented a total of only $57,700,000, against $166,030,000 in March a year ago. In February this year the charters involved $51,575,000. The grand total of all companies chartered last month with a capital of $100,000 or over covering all States, including those of the East, amounted to $131,737,000, against $117,065,800 in February. In March last year it was $238,720,000.

Following are the comparative figures as specially compiled by The Journal of Commerce and Commercial Bulletin of companies incorporated in the Eastern States during the last three years with an authorized capital of $1,000,000 or more:

	1914.	1913.	1912.
Jan. ..	$120,050,000	$332,450,000	$210,520,000
Feb. ..	51,575,000	191,500,000	166,300,000
Mar. ..	57,700,000	166,030,000	159,578,000
Total	$229,325.000	$689,980,000	$536,398,000
April.		198,718,000	281,457,000
May		172,200,000	140,284,000
June		79,550,000	280,170,000
July		83,650,000	253,518,000
Aug.		63,500,000	164,500,000
Sept.		42,750,000	115,050,000
Oct.		70,856,300	169,495,000
Nov.		77,800,000	154,200,000
Dec.		55,250,000	200,100,000
Total		$1,574,254,300	$2,295,172,000

BUSINESS TRENDS.

IDLE RAILWAY CARS.

The fortnightly figures are given below, with the returns for other periods figures representing net surplus of idle cars, except where otherwise indicated:

1914—		1913—	
Mar. 15	124,865	July 15	69,405
Mar. 1	153,907	June 30	63,704
Feb. 15	197,052	June 14	63,927
Feb. 1	209,678	May 31	50,908
Jan. 15	214,889	May 15	50,294
Jan. 1	188,850	May 1	39,799
1913—		April 15	57,498
Dec. 15	†101,545	April 1	57,988
Dec. 1	57,234	Mar. 15	37,775
Nov. 15	22,652	Mar. 1	31,381
Nov. 1	*1,842	Feb. 15	22,183
Oct. 15	*6,048	Feb. 1	37,260
Oct. 1	10,374	Jan. 15	28,439
Sep. 15	40,150	Jan. 1	17,053
Sep. 1	58,306	1912	
Aug. 15	54,425	Nov. 7	*51,169
Aug. 1	58,445	April 25	†138,881

* Net shortage; † Maximum surplus for year; ‡ Minimum surplus for year.

COMMODITY PRICES.

Bradstreet's Index Number for March is 8.832, thus registering the third decrease in commodity prices this year. It compares with 8.861 for February 1st, 8.885 for January, and 9.229 for December 1st last. Most strength is reflected in provisions, while contrary tendencies are shown by the textile as well as by the metal group

The following table gives "Bradstreets" index numbers (the totals of the prices per pound of ninety-six articles) since January 1, 1909:

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	8.263	9.231	8.836	8.949	9.493	8.885
Feb.	8.032	9.073	8.766	8.958	9.459	8.861
Mar.	8.217	9.111	8.603	8.905	9.405	8.832
Apr.	8.316	9.200	8.522	9.098	9.297	
May	8.302	9.039	8.458	9.270	9.139	
June	8.396	8.911	8.529	9 102	9.072	
July	8.457	8.925	8.594	9.112	8.952	
Aug.	8.504	8.822	8.657	9.159	9.011	
Sep.	8.591	8.952	8.819	9.215	9.100	
Oct.	8.748	8.927	8.806	9.451	9.156	
Nov.	8.964	8.877	8.892	9.478	9.220	
Dec.	9.126	8.784	8.982	9.546	9.229	
Year	8.515	8.989	8.713	9.186	9.211	

BANK CLEARINGS.

According to Bradstreet's bank clearings for the month of March make a somewhat better showing than was expected especially as trade was irregular, while storms in the fore part of the period restricted business, and at the same time speculation was conspicuous by its absence. But notwithstanding the respective factors named, payments at all centers of the United States aggregated $14,112,845,406, which sum exhibits an increase of 10 per cent over February.

Following are the aggregate of clearings monthly at all cities in the United States, compared with the like periods in four preceding years as reported by Bradstreets:

(Six figures omitted)

	1914.	1913.	1912.	1911.	1909.
Jan.	$16,053	$16,092	$14,977	$14,341	$13,905
Feb.	12,736	13,483	12,788	12,136	11,121
Mar.	14,111	13,988	14,330	13,323	12,473
1st q'r	42,900	43,563	42,095	39,810	37,499
April	.....	14,162	14,855	12,254	13,531
May	.....	13,972	14,708	13,367	12,868
June		13,581	13,519	13,691	14,007
2d q'r		41,715	43,082	39,312	40,406
July	.....	13,423	13,847	12,925	13,322
Aug.	.....	12,260	13,097	12,495	13,390
Sep.	.....	13,290	12,956	12,410	13,405
3d q'r	.....	38,970	39,900	37,830	40,117
Oct.	.....	15,553	17,002	13,335	15,710
Nov.	.....	13,741	15,228	13,891	14,620
Dec.	.....	14,536	15,217	14,027	15.721
4th q'r	....	43,832	47,447	41,253	46,032
Total	.....	168,083	172,524	158,195	164.054

PIG IRON PRODUCTION.

Daily rate of production of coke and anthracite pig iron, gross tons:

	1910	1911.	1912.	1913.	1914.
Jan.	84,148	56,752	66,384	90,172	60,808
Feb.	85,616	64,090	72,442	92,369	67,458
Mar.	84,459	70,036	77,591	89,147	.....
April.	82,792	68,836	79,181	91,759	.....
May	77,102	61,079	81,051	91,039	.....
June	75,516	59,585	81,358	87,619	.....
July	69,305	57,841	77,738	82,601	.....
Aug.	67,963	62,150	81,046	82,057	.....
Sep.	68,476	65,903	82,198	83,531	....
Oct.	67,520	67,811	86,722	82,133	.....
Nov.	63,659	66,618	87,097	74,453	
Dec.	57,349	65,912	89,766	63,987	.....

PRESIDENT FARRELL ON EXPORT TRADE AND THE SHERMAN LAW.

A movement is on foot to assemble at Washington, probably in May, a convention composed of representatives of the financial, commercial and industrial activities of the country, which have a direct interest in the promotion and expansion of foreign trade. The prompting of this movement has come from the members of the American Manufacturers' Export Association and the American Asiatic Association, and to a lesser extent from those of the Pan-American Society. It has commanded the warm approval and support of the heads of some of the largest industrial corporations in the country.

Mr. James A. Farrell, president of the United States Steel Corporation, interviewed by the "Journal of Commerce," New York, presents for discussion a number of questions on this important subject which will be read with great interest, coming as they do from one who is certainly the best American authority on the subject, and under whose initiative and management such strides have been made by the United States Steel Corporation in the development of our export trade in iron and steel and their allied products.

We are glad to reproduce what Mr. Farrell has to say on the subject in the same number of the **"Digest"** that contains the Hon. John Barrett's speech before the Traffic Club, Pittsburgh, on the wonderful trade opportunities with South America and the Orient, presented by the opening of the Panama Canal. When read together they are illuminating and convincing, and of the greatest value at this time when an opportunity for trade expansion is presented such as has never been before offered to our manufacturers. These captains of industry and experience show us the way. If we do not proceed to take advantage of the situation, we will deserve the contempt of future generations from our failure to rise to our opportunity when it was so clearly offered. Other nations are alive to the situation. It is an occasion for statesmanship, as well as business enterprise and ability. It is to be hoped that our legislators and manufacturers will grasp the situation. Mr. Farrell says:

"The present supposed interpretation of the Sherman law as being applicable to the foreign trade as well as to the domestic necessarily causes considerable doubt and confusion in the minds of American manufacturers as to what extent they would be permitted to co-operate or to associate themselves with other domestic manufacturers for the economic distribution of their products, as is customary among foreign manufacturers. It is obvious that the proper exploitation of foreign markets is not only a matter of national importance, but one of great expense to those carrying on the business, occasioned either through the opening of branch offices, the appointment of agents, or sending special representatives, and only those manufacturers whose products are greatly diversified and who have sufficient capital to risk in such ventures, can undertake the business on a large scale in respect to the staple commodities similar to those manufactured by their foreign competitors.

What German Manufacturers Do.

"This statement, of course, does not include manufacturers of patented or other special articles which are of peculiarly American origin and which can be sold on a remunerative basis without coming into active competition with staple products of foreign manufacture, and it should be borne in mind that any great expansion of our foreign trade as far as volume is concerned must necessarily be in everyday articles of consumption in which Europe holds a commanding position in the world's markets. When it is considered that some 30,000 firms in Germany are banded together in an association formed largely for the acquisition of foreign trade, and that they are assisted both directly and indirectly by Government aid, and that they are permitted to establish syndicates of a co-operative character and distribute orders to plants which are either best situated geographically or best fitted to manufacture economically, it is important that any restrictions under which American manufacturers and producers are now laboring in this respect shall be removed or modified if we are to compete successfully with foreign manufacturers. It ought to be

made permissible for manufacturers of similar lines of goods to combine to the extent of seeking orders abroad and distributing such orders to mills in the best position to handle them. As such orders accrue to the benefit of the American workman and to the economic position of the country, it is difficult to understand why there should be any objection to their being secured by taking advantage of the lowest costs at plants which are most capable of undertaking export trade. For example, a number of manufacturers could send a joint representative to exploit foreign markets or could open a joint foreign office at an expense which would be impossible for any single one to bear. Such representative could seek orders to be allocated to the mills capable of manufacturing them most cheaply or satisfactorily, and the cost of maintaining offices, cables, traveling expenses, etc., would be reduced to a minimum."

The Consular Service.

"Our consular service has reached a remarkably high state of efficiency in co-operating with American manufacturers and producers who are interested in securing foreign markets for their products and thereby extending and developing the peaceful commercial relations and prosperity of our country. The able men who now adorn this service, carrying the message of American enterprise and industry to the uttermost corners of the globe, and our Department of Commerce, the medium through which information relating to foreign trade opportunities is laid before us, should have the hearty co-operation and support not only of the American manufacturer and producer, but of every American citizen having the smallest modicum of pride in his country or interest in the extension of its commerce and prestige among the nations of the world.

"There is no policy which the Secretary of Commerce has advocated during his administration which is of more importance to American manufacturers seeking export trade than that covered by his recommendation to Congress to supplement and improve the consular service by the appointment of a number of commercial attaches in the principal capitals of the world. I hope that the Secretary's recommendation to Congress will be approved and have no doubt that the type of men selected will be such as will commend them to the favorable consideration of the business element in the foreign countries to which they are accredited. It is further hoped that the compensation of these representatives will be adequate to command an experienced class of business men to undertake these missions. In order that the Government may be assured of the interest which American exporters are taking in this policy, it is quite certain that were it regarded as proper and permissible the associations interested in foreign trade would, through their membership, undertake to defray any proportion of additional remuneration which might be necessary to obtain the best qualified type of representative. We regard the necessity of obtaining such class of men to represent this country abroad commercially as important to the business interests of this country as the appointment of suitable ambassadors and ministers is to our diplomatic prestige.

"The United States has in recent years been represented abroad through its consular service by a class of men who have won commendation for their devotion to their duties, and, generally speaking, the American consular service has been looked upon abroad as typifying the highest class of such service throughout the world. The commercial attaches to be chosen will undoubtedly possess the necessary capabilities, and it is to be hoped that the amount of remuneration which it is proposed to be offered will attract a suitable class of men.

"It is further suggested that these men should be afforded the opportunity of meeting personally the principals of the various business organizations of this country, to make any inquiries that they may desire as to our country's export trade and methods of expanding it, prior to taking up their foreign positions. Moreover, opportunities should be afforded them to visit the various plants, mills and workshops now engaged in the export trade, as well as those industries which expect to engage in it, with the object of giving these commercial attaches as thorough an education as is possible in the limited time available in the principal lines with which it would be desirable for them to be conversant in their foreign missions. It is, of course, presumed that the study and reports of these gentlemen

in their foreign posts would be with respect to those products which, having regard to present duties and consumption of materials, it is possible for American manufacturers to make competitively, and to do this intelligently it is obvious that it is necessary for these commercial representatives to study in advance the manufactures and products of this country which are capable of being introduced and sold to a large extent abroad.

"Largely by reason of the stimulus Secretary Redfield has given to the development of foreign trade through the excellent work which is being carried on by the Department of Commerce, American business men are studying foreign markets as a basis for increasing their trade opportunities. There is probably no American manufacturer who has been engaged in export business for any length of time who does not recognize the futility of many of the attempts to increase American trade. American manufacturers will, doubtless, learn by experience how to adapt their goods and find markets for them in foreign countries. It is only through persistent and well directed efforts that success will be achieved, but they will learn more quickly if placed in an intelligent position as to the requirements in various countries as a result of the information made available through the reports of trade emissaries."

Government Recognition.

"The official recognition by our Government of joint associations, such as the American Manufacturers' Export Association, the Pan-American Society, the American-Asiatic Association, and properly established chambers of commerce, is a question that calls for thoughtful consideration and solution. In many European countries such organizations have a certain official or semi-official standing. The representatives of these associations are officially recognized and freely consulted by the Government authorities in their respective countries on all matters pertaining to trade and commerce and other related subjects, and in this way wise and just laws and regulations are established for the benefit of all the people. It would be a most desirable thing to have such a policy adopted in this country whereby a consensus of opinion and a full and free exchange of views, might be obtained by Government authorities and business men, manufacturers and producers on questions relating to the domestic and foreign commerce and trade relations of all classes of industrial enterprise.

"Government recognition of such organizations would also enable the Department of Commerce and other departments of the Government to secure the co-operation of highly specialized experts in many diversified lines of industrial activity, such as transportation, mining, manufactures and agriculture, thus securing the best thought and knowledge in the solution of problems relating to the welfare of our country and its people. Such recognition would also assist materially in advancing the policy tentatively proposed by this Government when our present tariff was being discussed in Congress with respect to the inspection of books or records of foreign manufacturers to guard against the dumping of foreign products into this country to the detriment of our industries and our workmen and the overturn of the high standard of wages and of living now enjoyed by the American people."

Question of Reciprocity.

"There are a large number of countries, principally those which are colonies of the United Kingdom or other European nations, at present discriminating against American manufacturers in favor of those of their mother countries, and it is important that serious consideration should be given to the problem of reciprocity trade agreements and that there should be constant conference between associations of American manufacturers and the Department of Commerce at Washington in regard to such discrimination. Continual effort is being made by European countries to induce further preferential consideration of the products of their countries, not only in their colonies, but in other markets, and while it is presumed that the United States consular representatives and the commercial attaches if appointed would devote particular attention to these questions, it is believed that American manufacturers can themselves with propriety take up these matters with the Department of Commerce in Washington with a view to having present discriminations abated and future discriminations obviated or lessened. In this connection special attention and study should be given to the possibilities of trade opportunity and development where there

is a marked disparity in the imports to the United States and the exports from the United States to certain countries, as, for example, many of the countries of South America. It is suggested that reciprocity or other trade conventions should be actively considered with a view to obtaining all the preferential consideration possible, having regard to the fact that European countries do not hesitate to obtain all such preference. As America has no 'colonial' interests, save in Porto Rico, Hawaii and the Philippines, little can be done to offset the restraint of American trade through the medium of discriminatory tariffs, except by obtaining preference from those countries to which we are logically entitled to look for preference because of the enormous disparity between our purchases from them and theirs from us. Precedents for such action are found in the preferential tariff of Cuba, and to a slight extent of Brazil, in favor of the United States, while the discrimination against the United States is especially marked in the case of Canada, South Africa, Australia and New Zealand, and the German, French and Belgian colonies."

Considering the amount of doubt and diffidence which exists in the minds of American exporters as to how much assistance they can expect from their Government in supporting American bankers in the underwriting of foreign loans, don't you think it well that some representation should be made to the Administration on this subject? Mr. Farrell was asked. He said in reply: "Experience has demonstrated that the bulk of the present export business of England, Germany and Belgium in manufactured commodities is due directly or indirectly to their investment of capital in foreign enterprises. A common experience of American manufacturers seeking foreign trade is to be informed that the business is confined exclusively to English or European manufacturers, for the reason that capital for the enterprises requiring material in question was provided from those countries. Even in many cases where impartial treatment is supposed to be accorded to the manufacturers of all countries, it has frequently been found that specifications for materials are so drawn as to permit only the manufacturers of one country successfully to compete. This obstacle to trade development can only be overcome by our Government giving its approval and support to American bankers to participate in foreign loans or to underwrite foreign enterprises of a legitimate character, so that orders for material accruing therefrom may come to American manufacturers. Not only do orders result from these loans, but the financial participation of banking interests in foreign countries invariably develops a community of interest which redounds to the benefit of the country concerned in many other lines than those which directly participate in the orders resulting from the loans. Other collateral results are the possible formation of branches of American banks to do business in the countries in which they locate and the initiation of new steamship lines."

Cheapening Transportation by Co-Operation.

"I should like to say something about the co-operation which seems to me possible among American manufacturers for the purpose of cheapening transportation of their products both by sea and land. Having regard to the generally conceded advantages of the coalition of American manufacturers in associations formed for the purpose of promoting export trade, it should be deemed consistent with the present interpretation of our laws if the members of these associations should combine their freight in order to influence freight rates whenever it might appear that discrimination was being exerted against American manufacturers. It should also be deemed permissible for any number of these manufacturers to appoint a common freight agent to handle their products at seaboard, so as to be assured of the proper handling of their goods from railway into steamer and to be kept jointly informed of freight rates in order to obviate discrimination."

But if joint efforts of this character be regarded as permissible, what other forms of co-operation do you think might be considered proper under the present interpretation of the laws, or would it be desirable for the laws to be amended so as to promote additional co-operation? To this Mr. Farrell made answer: "It has been found that those American manufacturers able to command a large volume of freight can generally assure themselves of equality of treatment through equitable

and impartial foreign freight rates, as the steamship companies are under such conditions unable and unwilling to discriminate in favor of European shippers on account of the volume of tonnage involved. It is conceded, of course, that the freight rates on products similar to those shipped by such large exporters are invariably as low to the smaller exporters of similar lines, but the problem is largely one of facilitating the operations of smaller manufacturers throughout the country who by themselves are not able to charter steamers when necessary, nor put a volume of freight on the market which justifies it being handled at the lowest rate or rates equivalent to those obtaining from Europe.

"It is the policy of our railroads to promulgate special export freight rates whenever the advisability of necessity of such rates has been established, and this well settled policy has been recognized and approved by the Interstate Commerce Commission.

"(1) By special rates on the direct export shipment of a great variety of commodities.

"(2) By special allowance on certain classes of commodities which enter into the manufacture of articles which are subsequently exported.

"The policy of the railroads in this respect is further supported by the well established policy of our Government in allowing or paying a drawback of the duty paid on imported materials which enter into or form a part of products of American manufacture exported. The policy of our Government with respect to drawback allowance of the duty paid on imported materials is also constantly emulated and followed by a great many American manufacturers and producers of semi-finished products who make special export allowances on material sold to other manufacturers upon the submission of satisfactory proof by the latter of the export of more highly finished products made from such raw or semi-finished materials. This practice of export allowance is based upon the principle that an export business in all classes of commodities should be encouraged with a view to enlarging the volume of our export trade and thus creating a basis for an exchange of values upon which our country's commerce with foreign countries is based.

"Practical manufacturers and business men in their endeavors to obtain a foothold in foreign markets are obliged to meet the competition of manufacturers and exporters in other countries engaged in similar industries. It has been learned by long experience in many lines that small concessions to manufacturers of finished products, in the prices paid for the raw materials used, have been of material assistance in enabling many American industries to find outlets in foreign markets that had never been exploited by them before. The policy of our railroads and our leading manufacturing interests in these matters has been of enormous benefit to all American manufacturers, and, as it is in harmony with our Government's drawback policy, it is worthy of careful study so that the greatest possible benefit may be obtained through its consistent and practical application."

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PREPARE FOR CANAL TRADE.

Magnificent Trade Opportunities From South American Development and Panama Canal Opening Convincingly Recounted.

BARRETT MAKES STRONG PLEA.

Hon. John Barrett, Director General of the Pan-American Union, argued convincingly that South America with the Panama Canal presents wonderful trade opportunities for the United States, before the annual dinner of the Traffic Club, of Pittsburgh, at Soldiers' Memorial Hall, Pittsburgh, Friday, March 27, holding the closest attention of his audience of nearly 600 men, manufacturers, traffic managers and railroad men from many states.

The toastmaster, Dr. Francis Harvey Green, in introducing the second speaker of the evening, the first being Daniel Willard, President of the Baltimore & Ohio Railroad Company, remarked that the Hon. John Barrett, Director General of the Pan-American Union, occupies a unique position of being an international officer of the United States, being appointed not alone by the President of the United States, but by the presidents of all American republics, twenty-one in all. He was well-fitted to speak on South America's growth and the prospective influence of the Panama Canal, for after serving as Minister abroad for several years he was Minister for seven years in turn to Argentina, Panama and Colombia and has now been Director General of the Pan-American Union for another seven years.

Mr. Barrett entertainingly opened his address by referring to his introduction some fourteen years ago to a Maine audience of 15,000, as "The Reverend John Barrett, exmissionary to the heathen land of Siam," the master of ceremonies on the occasion having confused one kind of minister with another, and then used the incident to illustrate the fact that years ago "every American minister who went out from our shores, and especially those who went out to Asia and the Far East, was a missionary of a new gospel of international rights, a missionary of a new diplomacy that at that time was having its birth as a result of the attitude of the United States. I refer to the diplomacy among nations of truth telling and the square deal." The speaker was loudly applauded when he declared that as a result of the initiative and leadership of the United States there is not a chancellery in Europe, Asia or South America where a United States Minister is not always welcomed as a man who can invariably be depended upon to speak the truth and only the truth in dealing with those countries. He further declared that despite various aspersions the United States now has the best consular system of any nation under the sun. He had been in close contact with our consuls and was familiar with the reports of British and German and French consuls. Mr. Barrett referred to his pleasure in coming to Pittsburgh and linked the Pittsburgh district with the message he bore of rapid expansion in South American trade and wonderful possibilities to be opened by the Panama Canal, his address from this point being given substantially in full below.

I do not indulge in any exaggeration when I make this sweeping declaration—and I say it with deliberation—that there is no city in the United States, no point of manufacture, no point of export, that is more vitally and directly concerned with the opening of the Panama Canal and in the development of trade with Central and South America, than the City of Pittsburgh and the Pittsburgh district. (Applause.) I am not overearnest when I say that I believe that during the next ten years, if it takes advantage of the opening of the Panama Canal and the field of trade in the twenty countries south of us, the Pittsburgh district should receive more advantage in return, more income as it were for its great manufacturing and exporting plants, than any other industrial center of the world. Now, then, it is up to the business men of this city and section, to the great transportation lines that run in and out of this city and this district, to get ready for the Panama Canal, and to go after Pan-American commerce.

Now, I am not going—though it might be better for me to do so—to read an address to you to-night, but I am going to follow the example of the preacher who reads a chapter from which he takes his text, and read one or two concentrated thoughts upon this point to you, and then follow it with my general observations, so that I

may have, as it were, some central idea to impress upon you, in connection with the topic which you expect me in a sense as an expert to discuss before you in an intelligent way. I cannot compare myself with President Willard. I cannot claim to be such an expert in my line as he is in railroading, but for fourteen years I have been obliged to give almost my undivided attention and activities to what I might call the Pan-American field, and also to the possible meaning and significance of the Panama Canal. Having been your first minister at Panama, having gone down there with the first governor and the first engineer and the first sanitary officer, Gen. Davis, Mr. Wallas and Col. Gorgas, and having been obliged to establish, in my capacity as minister, the diplomatic relations of Panama and the United States, I was obliged to study, as it were, the whole fabric of the relationship of the Western Hemisphere in connection with the opening of the Panama Canal, and so I hope that although I cannot qualify, as President Willard suggested, as an orator,—for I am not an orator, unless it is oratory to tell the truth—I hope I may make some suggestions to you as dynamic men, as men who, as the toastmaster says, are doing things, to arouse your hearty and deep interest in the Panama Canal and in Pan-American commerce.

Canal Will Benefit Railroads.

The Panama Canal will have a mighty influence upon the railroads of the United States. That this influence will be favorable, I am absolutely convinced. It is no exaggeration, in my opinion, to state that the traffic which should develop through the Panama Canal will prove a boon to all the railroads of the Atlantic and Pacific Coasts and the central sections of the United States. At first, the trans-continental systems, or those in the section between Mississippi River and the Pacific Coast, may suffer from the competition of the Canal, especially in the bulky class of freight. But in the course of a few years, what they will lose in this respect will be more than counterbalanced by the growth of business in the increased prosperity of both the Pacific Coast and the western portion of the Central West. In other words, in the course of five years, the increased development of local business and prosperity which will come directly from the opening of the canal, will far more than make up for the loss of the heavy through business.

The problem of the Panama Canal and Pan-America commerce are to-day the greatest—mark my word—the greatest foreign problems and opportunities which confront railroad and business interests of the United States. Getting ready for the Panama Canal, and going after Pan-American and Pacific trade should be the special study of this very hour for every railroad system and every manufacturing company which in any way is concerned with export and import business. Railroads in every part of this great land should join with commercial organizations and civic societies in not only studying the meaning and the possibilities of the canal and of the commerce which it will develop, but in actively and actually preparing to use the canal to send exports out and bring imports back and gain all things to meet the competition of such countries as England, Germany and France in Europe, and Japan in Asia. Not to be sensational, but simply to tell the truth, I am compelled here, in this great and representative gathering of traffic men, to sound a strong note of warning. It is that the powerful traffic and transportation interests of Europe, in the East, and of Japan upon the West, are leaving no effort neglected, not only to understand all the conditions of foreign trade affected by the Panama Canal, but to get ready for it in a practical way. The investigations which I have carried on both officially and personally, as to what is being done by the great commercial interests of Europe and Asia, convince me that unless the corresponding interests of the United States waken up to the very limit and make extraordinary efforts along the same line, the Canal will prove of far greater advantage during the earlier years of its use to foreign lands than it will to the United States.

Forget the Toll Question.

The issue of the Canal tolls which is now engaging Washington in some agitation is absolutely unimportant and secondary, as far as actual trade conditions are concerned, when compared with the importance of practical steps to use the canal for the upbuilding of the export and import traffic of the United States. While I cannot in any way, on account of my official position as an international officer, discuss the pros and cons of the toll question, I can tell you

that there is not a great port or exporting, manufacturing or importing center of Europe, of Japan or Australia and of northern and western South America, that is not to-day doing more to get ready for the Panama Canal than the corresponding ports and centers of the United States, with a possible exception of New Orleans and San Francisco.

Another note of warning that I desire to sound is this. The Panama Canal will not be a magic influence or a talisman of trade which will suddenly crowd our coast harbors with additional shipping, make busy our manufacturing establishments which are running on half force, and provide freight for all the idle cars of the railroads. But it can and will, in a reasonable degree, accomplish such results in a period of years, provided we prepare now to use it and actively go after the commercial features, just as we would prepare to use a new trunk railroad in the United States and go after the trade which that new trunk line would open up. One great danger and problem confronting the whole United States to-day, in connection with the Panama Canal, is that we have become so awed and impressed by the greatness of it as an engineering triumph, and we have also become so proud of ourselves in accomplishing the joining of the oceans, that we have overlooked the vital and all-important necessity of getting ready for it, so that we can use it to the fullest advantage from the jump, as it were, after it is opened.

Col. Goethals told me the other day that in all probability he can put a regular commercial steamship through the canal in July. That is only three months distant. The formal official opening will come in January of 1915. That is only nine months away, and yet, when we call the roll of preparations on the part of the railroad lines, on the part of the steamship lines, on the part of the manufacturing, the exporting and the importing interests, what have we actually done towards getting ready to use the canal and go after the commerce which it should develop?

The Pan-American Union, of which I have the honor to be the executive officer, as the international agency for the development of commerce, friendship and acquaintance among all the American nations, has been doing everything in its power in both North and South America, to awaken public sentiment to the need of getting ready for the canal and of building up the exchange of products by the Americas. Some splendid results have come. Some railroads, some steamship lines, some manufacturing, exporting and importing houses, and several right here in Pittsburgh, have shown a marked interest and have made a special effort which has met with excellent reward. To them great credit is due. But the majority of such companies are yet thinking it over and wondering what is best to do. What is necessary is to substitute action for waiting, active steps for argument.

Now, gentlemen, that is my chapter. This subject is so magnificent, so extensive, and covers such a field, that in the presence of specialists, as you are, I find it difficult to bind myself down, in the time at my disposal, to tell you all that wells up in my mind, all that I have learned from my experience as minister in three of these countries and for seven years as an officer of all of them. But one thing I may say, that I have listened with edification to what President Willard has said, because he is a great authority. I hope that what I have said and may yet say may be listened to by you, and that when you go forth from this magnificent room and leave tonight this marvelous memorial of the achievements of the past, that you may go with a firm intention that you are going to make this city, this section, this state and this country awaken to the importance of the canal to our trade with the countries on this side and beyond the canal, and to make the United States, instead of a laggard, a leader among the nations of the world.

I wish that I might fill a balloon, as it were, with hot air such as has been spoken in this room from time to time, and take you for a bird's-eye view of what I might term the Panama Canal field, the Pan-American field. But I have only time to touch upon a few points, the high places, as it were, as they rise up in my vision of the situation. Think of it, gentlemen. I speak not merely of our own country, this area of 3,000,000 of square miles, with its population of 100,000,000 and its foreign trade of nearly $5,000,000,000. But I speak of twenty other countries forming the Pan-American Union with the United States, twenty other countries whose combined area is three times the area of the United

States, or some 9,000,000 of square miles; twenty other countries who are off the great route of trade of to-day, who have 70,000,000 of men and women just as ready to buy and sell as ours, if they are provided buying and selling capacity. Twenty countries, despite the fact that they are off the eastern and western routes of the great transportation systems of the world, yet last year conducting a foreign trade, buying and selling products with the United States and with the nations of Europe and Asia, valued at the magnificent total of $2,500,000,000, and that in turn represents an increase of one billion of dollars during only the last ten years.

Now I say to you as practical men, honor bright, honor bright, if these so-called lands of revolutionists, lands which so often in thoughtless prejudice we call "dago lands," can do a commerce of $2,500,000,000 in a year, and that commerce represents an increase of $1,000,000,000 in the last ten years, are they not worthy of our most careful study, our most careful development and exploitation in matters of trade and friendship and good relationship? But you may say, "Mr. Barrett, that is very good, but where does the United States stand? What are its chances?" Now, then, I am going to kill a bogey, and I hope I will kill it so thoroughly with thoughtful men like you that you will not forget the slaughter.

United States Has Been Gaining Ground.

There is nothing to-day that wearies me more than to hear senator or congressman or editorial writer or magazine writer, or the man who thinks he is an authority but is only familiar with facts and conditions as they existed, five, six or ten years ago, to announce that the United States is not in it in the trade of Central and South America, that we are being supplanted and outrun by Germany and England and France. Business men of Pittsburgh, traffic men of the country, I want to say to you at this very moment the United States is building up its trade in Latin America faster than any other nation on the face of the earth. (Applause.) I want to tell you that during the last five years, the United States has increased its volume and percentage of trade in Latin America faster than either England or Germany or France or any other country. This year, this past calendar year, the United States bought and sold products with Latin America valued at between $800,000,000 and $900,000,000. That represents an increase of nearly $500,000,000 during the last ten or twelve years. No country of Europe has any such increase as that. I mention this to encourage you and not have you discouraged by the suggestion that there is not opportunity down there for us, because these other countries are so far ahead of us. What is true is this, and it is very interesting and amusing, too. As the result of the tremendous progress that our exports and imports have made in the trade of Latin America to-day, suddenly Germany and England and France and Japan are awakening to it, and are saying, "We must work harder than ever before, or we will lose the original advantage we had in that part of the world." And at this very moment the German Emperor is sending Prince Henry to South America for no other purpose than to prepare the way for a new trade rennaissance, as it were, between Germany and that part of the world, but in fact to effect the growing influence of the United States. Only recently three or four great Frenchmen and Spaniards and Austrians have been down there, and now the Japanese are preparing to send some of their great men to South America, in order that they may pay the compliment to these countries of a visit of distinguished men, as we have done in sending such men as Elihu Root and others to open up a new relationship between them and ourselves.

Don't Make Fun of South America!

Now, gentlemen, think of this fact, because it is well to mingle the sentimental occasionally with the commercial, the material. Sentiment often makes a tie that binds the commercial side. We have got to stop patronizing these countries; we have got to stop looking down on them; we have got to stop making fun of them; we have got to stop calling them lands of revolutions, and give them credit for their wonderful history, for their beginnings, for the progress they are making, for the civilization they are already developing. There is no greater influence to build up trade than that of admiring a people and having them feel that you do admire them and that you do not look down upon them. You do not gain the confidence of a man when you patronize him. When you treat him as an equal, he comes to you, he trades with you, he trusts you. The trouble is

that we have been looking down upon Latin America. Even if certain sections of it seem to deserve that attitude, we have got to change it if we are going to be the leaders of the nations of the world in appreciating and developing that field. How many of you men to-day, including our distinguished educator who is acting as toastmaster, stop to realize that every one of these twenty countries won their independence through the leadership of generals and statesmen who, by their own biographies, state that they were inspired to make the fight for liberty in that or this country by the example of our own immortal George Washington? How many of you realize that every one of these twenty countries wrote its constitution upon the Constitution of the United States? Considering how that dear old document is accepted around this world, there is something certainly to its credit which is not to the credit of any other document in the world, unless it be the Magna Charta. So then we have the sentimental and the commercial to consider as we are discussing this growing field. There, as it were, is a platform upon which to stand.

Our Great Lesson of Sanitation.

Now, gentlemen, I want, as it were, that you should get some idea of the striking features of the present day and the future possibilities of these countries, just as you must get them of a city or state or section with which your railroad or you yourselves are trying to do business. Now, then, looking down upon the great South American continent, we look at Brazil and say that it is largely in the tropics, and therefore it means nothing to us. Gentlemen, you are going to see during the next twenty years the most marvelous development in the tropical belt of the world that history has ever known, because of the example we have shown and the lesson we have taught at Panama. If we had done nothing else there than the engineering feat, than that of sanitation, we have set an example and exercised an influence which is going to revolutionize, gentlemen—I say it thoughtfully—going to revolutionize a section or belt of the world that can hold uncounted millions of people and produce uncounted millions of value of products that will build up trade with the United States and the rest of the world. The mighty valley of the Amazon was a great untouched world until taught the new laws of sanitation, and where there are to-day perhaps not more than a million people, there will come presently, just as there has come in India and in Java and other tropical countries, scores of millions of men who will trade and buy the things which you manufacture up here and in turn sell to you their raw products which we cannot raise here in the United States. That may be somewhat distant, but if you could compare already the tropical sections of Central America and North and South America with what it was ten years ago, as I have done, you would see that my picture is not in any sense an exaggeration. Why, gentlemen, it is one of the most fascinating romances in the world, these changes that are coming over the so-called mosquito and pest-ridden coasts of Central and South America. Unlimited areas which I once saw as mere wilderness and the home of yellow fever and malaria, are being converted like magic into vast gardens, being crossed by railroads built into the interior, towns starting up, prosperous, healthy people living where before there was nothing but wild animals and the fomenters of revolution. Presently the world is going to awaken to a realization that the old maps are all wrong. It is up to us here in Pittsburgh and throughout the United States to get ready to take advantage of this magic change that our own enterprise has made possible by what we have done at Panama.

How many of you stop to think that you can put the entire connected area of the United States inside of Brazil, and still have room for the State of Pennsylvania left over? You have a great river flowing through this city, two great rivers emptying into another great river in turn, which helps to make the Mississippi so mighty. Yet out of the Amazon flows every day five times the volume of water which the Mississippi empties into the Gulf of Mexico. The average vessel we use only goes up as far as New Orleans. I have gone myself from New York City on a vessel drawing 27½ feet of water, 2,000 miles up the Amazon, at only the average depth of the season, until I have arrived outside of Brazilian territory in Peruvian territory within only 700 miles of the Pacific Ocean. I have found seven Booth Line steamers loaded down almost to the limit 2,100 miles from the Atlantic Ocean, loading crude rubber. There are 20,000 miles of the

waters of the Amazon and its tributaries on which barges drawing ten feet of water can be taken with absolute ease. Now, honor bright, where is the man that dare tell me that God meant that that land should remain a barren waste, when right now we are demonstrating the method by which it can be made fallow and prosperous? It is going to be done. It is going to be done, if I have my way, by American capital, by American engineers, by American railroad men, by American traffic men, and in time it is going to be one of the greatest fields for effort of our people. How many of you stop to think that the city population of the capital of Brazil has passed the million mark and it has been recently described by a French authority as shortly to be the most beautiful city in the world? It has, perhaps, the finest harbor of the Americas, and those wonderful mountains and hills within its city limits, and that marvellous bay, and a most enterprising people. They have spent $30,000,000 providing themselves with splendid docks and wharves. They have built great railroads into the interior. While it is true that at this moment Brazil is suffering from a great financial depression, such as we have had from time to time, and as we know, financial depressions come to all nations, in time Brazil will learn her lesson of over-speculation and when the new era starts in, it is difficult to foretell what will be the future greatness of that country. Its foreign trade last year amounted to more than $700,000,000, despite their financial depression, and that means a great deal when you consider that within themselves, as far as food supply is concerned, they are largely self-contained.

Then south of Brazil is the little country of Uruguay. Montevideo, its capital city, with 400,000 people, has just spent $11,000,000 in providing itself with a magnificent harbor to take care of the greatest ships of the world.

And then covering an area equal to all of that section of the United States east of the Mississippi River plus the first tier of states west of it, is Argentina, what I have called the wonderland of South America. Having been your minister there, and having traveled practically all over it to see what there was, while your minister there, I speak perhaps with earnestness but yet with truth, when I tell you that in many respects it is the most remarkable country in the world. Do you know that to-day in Argentina, which is entirely in the south temperate zone, they are carrying on with only 8,000,000 people, a greater foreign trade than the Japanese are with 50,000,000, or the Chinese with 300,000,000? Do you know that last year Argentina conducted the largest foreign trade per capita of any important nation upon the face of the earth, over $100, or twice the per capita trade of the United States? Yet we have been spending millions in the Orient, where we have spent only thousands in South America. Do you stop to realize that Buenos Aires has just passed the mark of 1,500,000? When I was your minister there fourteen years ago, just before I went to Panama, the population of that city was 850,000. It has grown nearly 600,000 in the last ten or eleven years.

A $25,000,000 Subway.

It has thought nothing of spending $25,000,000 on a great subway just completed. It has thought nothing of spending $50,000,000 in providing itself with one of the finest systems of concrete docks and wharves to be found anywhere in the world, and digging channels forty miles long, two of them, from where the waters of the River Platte leave its shores out to the deep water of the river, so that the great ocean vessels can come up to these wharves. Buenos Aires, with due respect to the Pittsburgh papers, has the finest newspaper building in the world. I will not say the finest newspaper, because that would be unkind. They have the finest opera house in the world, with the possible exception of those in Vienna and Paris. They have the finest club building in the world. They have the finest race-course in the world. These are things that we forget when we think we are the only potatoes in the pile, and when we speak of them as lands of revolution. Railroad men find Argentina one of the most interesting countries to study, because it is being grid-ironed with railroads—small, of course, in mileage, as compared with the United States, as it is small in population, but still of great possibilities along these lines.

Just across from Argentina in the south temperate zone, and directly south from the United States, through the Panama Canal, is Chile. Now, the average man generally thinks of Chile con carne, and there it ends. I wonder how many men

here could tell me where the north end of Chile would reach if the south end were placed down at San Diego, California. It would not stop at the California-Oregon line; it would not stop at the Oregon-Washington line; it would not stop at the Washington-British Columbia line; it would not even stop at the British Columbia-Alaska line; it would reach half way into Alaska. Chile lying directly south of Pittsburgh, Santiago, its capital, almost on the meridian of Pittsburgh, it is a vast city of 500,000 inhabitants, the Paris of the Andes. Chile, I say, occupying over half of the potent west coast of South America, which we are about to reach through the Panama Canal. And yet we are asleep, many of us, to the realization of this fact. North of Chile is Bolivia. Bolivia has no coast line, but simply debouches on this coast directly south of Pittsburgh. Covering an area twice that of Texas with Pennsylvania added, it is likewise to-day being built up by the use of railroads. In fact, railroads are the magic influence that is changing the whole surface of South America, and they are watching the way we are working out our problems here.

Interested in Our Rate Decision.

Only the other day, a member of the cabinet in Argentina, who has to do with railroads, telephoned me and asked that I cable at least 1,000 words when it was announced that the decision of our Interstate Commerce Commission upon this matter of increase of rates was announced. They wanted to be guided by it in dealing with their railroads down there. They recognize all over Latin America that we have reached the highest point here of transportation and traffic development. They are trying in every way to learn lessons from us.

And then, north of Bolivia is Peru. As I said in St. Louis the other day, the average man thinks of Peruna, and there it ends. He does not know that Peru if placed on the Atlantic coast of the United States, would cover the whole coast from Maine down through Georgia, almost to Florida, and it has a reach of nearly 1,000 miles on the Pacific Ocean, and in Lima, Peru, has a university that was 100 years old, with a thousand students in it, before John Harvard or Eli Yale thought of making Harvard or Yale University. Yet we generally think of ourselves as too entirely superior to that part of the world! The greatest achievement in railroad construction in the world is in Peru, where you get up at an elevation of over 16,000 feet, and that road was built by the genius of a great American engineer.

And then there is Paraguay, which I failed to mention, a land of potentialities. And then north of Peru is Ecuador, with a coast line several hundred miles in length, again being transformed by railroads reaching up into the plateaus of the Andes. Colombia and Venezuela are not so far away, but do you realize that the northern point of Venezuela is nearer to the southern point of the United States, Key West in Florida, than Pittsburgh is to Denver? Yet we think of South America as being so far away.

But you say again, these countries are in the tropical belt. Gentlemen, remember that in these countries as in the tropical belt of Central America, are those wonderful plateaus from 3,000 to 10,000 feet above sea-level, right under the equator, where you have the climate the year around that you have here in Pittsburgh in June or September. In the library of my legation in Bogota, Colombia, I never saw the thermometer go above 90 degrees, and every night it went down to 59 or 60—although within a stone's throw of the equator. There is a plateau as large as the whole state of Massachusetts, having on that plateau not more than a population of 200,000 where 2,000,000 could live. The same is true of the great plateaus of Ecuador, of Venezuela and of parts of Peru and Bolivia, and also of Guatemala and Central America and Central Mexico. Those are what God has made to offset the low-lying tropical areas, not to speak of the changes which sanitation is bringing about there, and to which I have already referred. If I had time, I would like to discuss the other countries of Latin America more carefully, but it is not possible to do it justice to-night.

Barrett on Mexico.

But we have come now to Mexico. I had not intended to discuss in any way the Mexican situation, but three or four have asked me if I would not say a word or two about it. I shall not make any comment. I cannot, in view of the nature of my office, upon the policy of the President of the United States. But I do want to say a word, in fact, I think it is my duty with such a gathering as this, to say

just a word of the Mexican and the Latin American point of view on this question of intervention, for I feel that the men who are here are thinking and influential men, and I hope that as they go forth from this room, they may be able to say a word somewhere that will stem the tide of the careless, who speak freely about intervention. Gentlemen, remember that as you listen to me you are listening to one who when a Mexican comes to Washington, is addressed as if he were a Mexican; when an Argentinian comes to Washington, he talks to me as if I were an Argentinian; when a Venezuelan comes to Washington, he talks to me as if I were a Venezuelan, and I understand him. I understand him, but it has taken me ten years to understand these people, to get, as it were, under their skin and think as they think, and it took me nearly ten years to think as the Chinese and Japanese are able to think. But I have never yet, since I have been able to develop the faculties for myself, been in error in interpreting their point of view. Therefore, what I say to you is of a solemn character, because of what it involves.

They Would Consider Intervention a Crime.

In the first place, I want to tell you that twenty countries in Latin America—and there are 70,000,000 people in them—are just as firmly convinced that intervention would be a crime as we in the United States were convinced that intervention by Europe would have been a crime in the time of our Civil War. (Applause.) And I will tell you just the way the Mexican and the Cuban and the Colombian and the Costa Rican and the Chilean and the Argentinian and the Brazilian argues the question. First, they say, remember that the sovereignty of Mexico is just as dear to the Mexicans as the sovereignty of the United States is dear to the people of the United States. Remember that it is not a war against the United States in any sense, shape or form; it is purely and absolutely a civil war of Mexicans against Mexicans. Remember that it has only gone on about three and a half or four years. Remember that where one American has been killed, a thousand Mexicans have been killed, that where altogether some 40,000 Americans may have suffered losses and conveniences, 15,000,000 of Mexicans have suffered infinitely more. Then remember that back [illegible] United States had a civil war that lasted for five awful years. He could tell us of what those years were (pointing to a portrait of Gen. Meade on the wall). Five awful years in which more men were killed than in all the revolutions of Latin America for one hundred years. Remember, they say, that that civil war was followed by ten years of awful reconstruction, in which not one dollar of European capital or foreign capital could be invested in the southland, and then remember, they say, what happened when the London Times, at the time of the Hayes-Tilden conflict, suggested that there might be another civil war, and that then Europe would have to intervene. Remember that every newspaper in the United States, from Pennsylvania to California, and from Louisiana to Minnesota, thrust it back on Europe that if she in any shape or form should invade the United States, or assault its sovereignty, every son, north, south, east and west, would die before he would permit such a conquest. (Great applause.)

Then he goes on to say this. Remember that it will cost the United States a million dollars a day. Remember that it will take an army of occupation of 300,000 men probably four or five years, that while their forces, their army corps, may gain the capitals and the big cities, the guerilla warfare in those low tropical lands and arid plateaus will make every American sad, and those boys of yours down there who may have left Pittsburgh with flying colors and waving handkerchiefs and the singing of Hosannas, when they are down there and ambushed and they suffer the atrocities of an Indian warfare, and they are dying up in the arid plains or in the swamps, they will say, "This would be glorious if it were for the flag, or for the protection of our country, to preserve our lands;" but to see these men perish as mere policemen, with no principles at stake, is indeed a disgrace and a sorrow. (Applause.)

And so I say to you men here, realizing the attitude of Mexico and the Latin Americans, realizing the importance of having those countries on our side whenever we do have a war that involves the honor of that flag and the protection of it, if ever we do have a war that involves the perpetuity of our land and the saving of our honor with a great foreign nation of Asia or Europe, we have got to have Latin America upon our side, or the Panama

Canal and our food supply will be gone. What, I say, are the losses of a few Americans down there, what is the death of a few Americans absolutely incidental to that warfare and not killed because they are Americans, what are these in comparison with a war that will cost us a million dollars a day and an army of occupation of 300,000 men, and a conflict that may go on for ten or fifteen years, and raise the hatred of all Latin Americans—and there are 70,000,000 of them? Honor bright, gentlemen, I hope you will go out from this room as missionaries in favor of the policy of watchful waiting. (Applause.) I want it to be understood that I have the greatest of kindness towards those who favor intervention. I do not suggest that they are doing it for personal motives at all. I have the greatest respect for those who differ from me, and I have for them no thought or spirit of unkindness; but it is simply because of the absolute conviction that wells up in my heart from the capacity of looking at it from both sides.

Commercial Aspect of Canal.

Now, gentlemen, before I close, just a word in regard to the Panama Canal's commercial aspect. I want you traffic men and you manufacturers and exporters to remember that the Panama Canal's first benefit, as far as our foreign trade field is concerned, is on the way to the canal. How many of you stop to think that the Latin American countries, the Caribbean Sea and Gulf of Mexico, which heretofore have been in a cul-de-sac, are now to be placed upon a great world's route of travel? Those localities without the canal, have done a business of $700,000,000; with the canal, they will do a business of $1,400,000,000 per annum, of which the largest share should go to the cities and places like the Pittsburgh district, if you will only get ready for it and go after it. Beyond the canal is the Pacific Ocean, whose annual commerce last year amounted to $4,000,000, and on which debouch, 1,000,000,000 people. But there is this point not to forget, the cardinal point of this argument. From California, south to southern Chile, are 8,000 miles of virgin coast line, upon which twelve countries debouch, who last year, without the canal, conducted in an isolated condition, a foreign trade valued at over $600,000,000. The best experts say that within ten years after the canal is opened up, that trade will go $1,200,000,000, or $2,000,000,000. And in view of Pittsburgh's relation to the canal, there is no reason why that business, half of which is now European, should not three-fourths become the business of the United States, if you will get ready for it and go after it. I will not speak of the trade of the Pacific coast of the United States, the trade of Japan and China, for I haven't time. As I close, I have only this final appeal to make to you. I want you men here to take a greater interest than you have done in foreign trade and foreign relations. I want you men with your splendid spirit to realize that our foreign trade is absolutely the same thing as our home trade, only extended, just as you begin with the family and go to the community, and then to the city, and then to the state, and then to the nation, and then to the family of nations, so you go from local trade of the little store up to the international trade. Now, then, our international trade is affected by our international relations. Just as we are fair and honest and square in our theories and in our relations with nations, just as we are square, I say, will we correspondingly increase our trade and our business with them, and their confidence in us. The same principles that build up the business of the Baltimore & Ohio Railroad with the shippers of the Pittsburgh district, the same principles will build up trade between the United States and these countries to the south of us. I want you to remember that you have got to travel down there as you do in this country and know them, and in turn you must bring them up here and make them feel at home in this country. Get their manufacturers and exporters and importers to come here as you go there. You must study the resources and the possibilities of those countries, their history, their social development. In the public schools, in the colleges and in the universities we must take up the study of those countries, and their languages and their customs and their habits as Europe and even Japan are now doing. We must get closer to them and bring them closer to us. They have their disadvantages and their faults, but we must overlook those as we are building up our trade, and later when we have gained their confidence and their trust, we can help them to correct their faults.

Gentlemen of the Traffic Club of Pittsburgh, our foreign trade and our foreign

relations are not determined by the President of the United States, not by your senators and your congressmen, but by yourselves. According as you think and act, according as the people of the United States think and act, so will the government at Washington think and act. And I want you to-night to go out from this room, not merely as citizens of Pittsburgh in Pennsylvania, or of other cities and states, not merely as citizens of the United States, but as citizens of Pan-America, with Pan-American vision, realizing that your efforts shall build up commerce and civilization and that you will help to make that flag honored and loved upon the summit of the Andes and in the valleys of the Amazon as much as upon the summit of the Rockies and in the valleys of the Mississippi and Ohio, and that God will say in his wisdom, "It is right that the United States should be called a sister republic of these other nations."

I thank you.

STARVE THE RAILROADS AND WE STARVE OURSELVES.

(Frank A. Munsey in Munsey's Magazine for April.)

The railroads are structurally a part of our national life—fiber of our fiber. They are the arteries of our very being through which courses the life-blood of the nation. We cannot do them harm without doing ourselves harm. Starve them and the pinch of poverty grips us.

The railroads were built by private capital and are owned by private capital, and yet they have little of the inherent freedom of private property. Their charters constitute them common carriers, public service concerns, and as such they are in a sense owned in common by the public and by private capital—no actual public ownership in them, dollars and cents ownership, but in the outworking the "senior partner" influence and dominancy of the public makes it amount to about the same thing.

Such a partnership between the public and private capital, the latter putting up all the money and taking all the risks, is a soft thing for the government, arrogating to itself, as it does, absolute control. Of course, it wasn't this way when railroads were built, when capital risked itself in these venturesome undertakings. If it had been—if the government's attitude towards railroads had been just what it is now, the same narrow picayune policy in force—we should have no railroads today except government built and government owned.

Private capital in any measure worth while would never have gone into the upbuilding of railroads, knowing in the outset the extent to which it would be fettered and hampered and harassed, as it knows it now.

I have no fault to find with government control as such. It is the kind of government control we have, with which I am finding fault. As a matter of fact, there is nothing else for us but government control or outright government ownership.

With strong, able, wise government control—a kind of control that embodies constructive co-operation with railroads — we should have a far better railroad service than we could well hope for from government owned and government operated railroads. I don't believe there is any doubt about this.

Though capital went into railroad construction with the idea that railroads were private property, the change that has come about, putting them so completely under government control, was inevitable. Neither the government nor capital foresaw this change in the early days of railroad development. Indeed, it was the very vastness of this development and the incomparable power railroads had come to be, that compelled public control and gave rise to the present conception of the proper relations of the railroad, common carrier that it is, to the public.

The government, therefore, cannot be charged with luring capital into railroads under former railroad freedom with the knowledge that this freedom later on would be taken away from them. Until within a little more than a decade ago there was no serious conflict of opinion between the government and the railroads.

At the outset no one ever dreamed of the power the railroad has come to be and the part it plays in our daily lives, to say

nothing of its inconceivable contribution to the opening up and development of the country.

It follows naturally that changes in our laws must be made suited to this new development—a development so vast in its power that, unchecked and uncontrolled, it would in time contest for the mastery with the very government itself.

So government control had to come, but in the exercise of its control it has frightfully crippled and maimed the entire railroad business of the country. Capital has lost heart and would get out if it could do so without too great a sacrifice. Dividends on railroad shares have dwindled until they have no appeal to fresh capital. The government stakes out the lines within which capital must work, fixes its rates of income, and then says to capital, "Give us the best railroad service in the world."

All this would be well enough if the government's conditions were such as to make this possible, which is not the case. The fact is the railroads cannot give us the service we demand, pay the wages and taxes they are paying, and live on the income to which the government is grudgingly holding them down.

But the chaotic condition of the railroad business is only a little worse than that of business generally throughout the country. There is no snap and go to anything, and everything is in a blue funk. In view of these conditions, what are our chances of having good times? We hear the question all the while. It is on everybody's lips. The answer is vital. It affects our entire population, one hundred million human souls. No one is beyond the sphere of its influence. Our expenditures, our incomes, the scope of our undertakings, the scale of our living—our necessities, our comforts, our pleasures, our luxuries, our savings, and our very future—all depend upon it.

We are a temperamental, impressionable people. When we have good times we hurl ourselves on enterprise and sweep everything before us. When we have hard times and feel the pinch of poverty and see idle cars, idle factories, and idle labor, we get a fit of the blues which makes us distrust our institutions, distrust ourselves and look upon life as one weary grind.

We have wallowed in the slough of despond since the beginning of 1910, and today our securities, battered and tattered, find little favor with European investors. Every enterprise has felt the lack of confidence, the lack of courage, and has perforce squared itself to that grim, ill-shapen thing—the thin pocketbook.

But human nature, and particularly American human nature, cannot be kept down forever. We have had enough of the valley, with its fogs and chills, and want to get away from it all and once more look out on the world from the sun-swept heights. And, too, we want to hear the old, old story of what a wonderful country we have, of the vastness of our resources, the colossal measure of our undertakings, the bulging of values and the song of opulence and wealth and riches—enthralling music to our ears.

Starving the railroads and hostility to capital are responsible for our business depression and industrial stagnation. The government has overplayed its hand in humiliating capital and breaking up our big enterprises. Its obvious worry lest somebody, somewhere, somehow, might make a dollar has been overdone. Continue the policy of starving the railroads and we shall continue to starve ourselves, and shall have no good times. Let the railroads make a decent living, and the wheels of enterprise will leap into activity.

But Wall Street says good times are here. Wall Street may be right and may be wrong. Things have been deadly dull down there for so long that every one clutches at the very suggestion of hope. Hope in Wall Street is perhaps father to the wish. It looks to me as if it were in this instance. Wall Street is amazingly elastic in its conclusions. When it comes to shifting its opinions it puts a lightning change artist out of the running.

I am not writing as a pessimist. I am an optimist through and through, but optimism must take cognizance of facts. And what are the facts on which to base the hope for business activity, with our new low tariff, unless we get a **gigantic impetus** from some source or other?

It is clear that with our high wage we cannot get this impetus from such exports as come into competition with the products of the low wage of the rest of the world. And if not from exports, whence shall we get the quickening influence? The new currency law won't bring it. The new currency law will perhaps make money easier, but money is already easier than need be.

COMPARISON OF METAL PRICES.

	Range for 1912.		Range for 1913.		Range for 1914.		Closing
Pig Iron.	High.	Low.	High.	Low.	High.	Low.	Mar. 31st.
Bessemer, valley	17.25	14.00	17.25	14.25	14.25	14.00	14.00
Basic, valley	16.50	12.25	16.50	12.50	13.25	12.50	13.00
No. 2 foundry, valley	18.00	13.00	17.50	13.00	13.25	13.00	13.25
No. 2X foundry, Philadelphia	18.50	14.75	18.50	14.50	15.00	14.50	15.00
No. 2 foundry, Cleveland	17.75	13.25	17.75	13.50	14.25	13.25	14.25
No. 2X foundry, Buffalo	17.25	13.50	18.00	13.00	13.75	12.50	13.75
No. 2 foundry, Chicago	18 00	14.50	18.00	14.00	14.75	14.00	14.75
No. 2 Southern, Birmingham	14.00	9.75	14.00	10.50	10.75	10.50	10.50
Scrap Iron and Steel.							
Melting steel, Pittsburgh	16.25	12.50	15.00	10.75	12.00	11.00	12.00
Heavy melting steel, Chicago	14.00	10.75	13.25	9.00	11.00	9.00	10.00
No. 1 R.R. wrought, Pittsburgh	16.25	13.00	15.75	11.50	12.75	11.50	12.75
No. 1 cast, Pittsburgh	15.25	12.35	15.00	11.50	12.25	11 50	12.25
Heavy steel scrap, Philadelphia	17.00	11.75	14.75	9.75	11.25	9.75	11.25
Iron and Steel Products.							
Bessemer rails, mill	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Iron bars, Pittsburgh	1.65	1.25	1.65	1.35	1.35	1.35	1.35
Iron bars, Philadelphia	1.67½	1.22	1.67½	1.22½	1.27½	1.22½	1.27½
Steel bars, Pittsburgh	1.40	1.10	1.40	1.20	1.20	1.15	1.15
Tank plates, Pittsburgh	1.50	1.10	1.50	1.20	1.20	1.15	1.15
Structural shapes, Pittsburgh	1.50	1.10	1.50	1.20	1.25	1.20	1.00
Grooved steel skelp, Pittsburgh	1.45	1.15	1.45	1.15	1.20	1.15	1.20
Black sheets, Pittsburgh	2.25	1.80	2.35	1.80	1.95	1.80	1.95
Galvanized sheets, Pittsburgh	3.40	2.80	3.50	2.80	2.95	2.80	2.95
Tin plate, Pittsburgh	3.60	3.30	3.60	3.40	3.40	3.40	3.40
Cut nails, Pittsburgh	1.70	1.50	1.70	1.60	1.60	1.60	1.60
Wire nails, Pittsburgh	1.75	1.55	1.80	1.50	1.60	1.50	1.60
Steel pipe, Pittsburgh	79%	81%	79%	80%	79½%	80%	79½%
Connellsville Coke at ovens.							
Prompt furnace	4.25	1.80	4.25	1.75	2.00	1.80	1.90
Prompt foundry	4.50	1.90	4.50	2.40	2.50	2.50	2.50
Metals—New York.							
Straits tin	51.05	42.05	50.70	36.75	41.12½	36.45	38.10
Lake copper	17.80	14.15	17.00	14.50	15.50	14.50	14.81¼
Electrolytic copper	17.75	13.95	16.87½	14.12½	14.87½	14.10	14.45
Casting copper	17.65	13.75	16.62½	13.87½	14.65	14.00	14.25
Sheet copper	23.00	19.00	22.00	19.75	20.25	19.75	19.75
Lead (Trust price)	5.10	4.00	4.75	4.00	4.15	3.80	3.80
Spelter	7.65	6.45	5.65	5.10	5.50	5.25	5.32½
Cooksons antimony	10.50	7.12	9.00	7.25	7.37½	7.20	7.22½
Aluminum 98-99%	28.00	18.50	27.12½	18.50	19.00	18.00	18.12½
Silver	64⅛	54⅛	62⅛	56⅛	58½	57⅛	58.00
St. Louis.							
Lead	5.02½	3.90	4.72½	3.85	4.10	3.65	3.65
Spelter	7.50	6.25	5.85	4.95	5.35	5.10	5.12½
Sheet zinc (f.o.b. smelter)	9.00	8.00	9.00	7.00	7.50	7.00	7.00
London.	£	£	£	£	£	£	£
Standard tin, prompts	233	183¾	232	166	188	165½	173⅛
Standard copper, prompts	80⅞	60⅛	77	61⅛	66⅛	62½	65⅛
Lead	23¾	15⅞	21	15⅞	20⅛	18¼	18⅛
Spelter	27⅝	25	26	20	21⅛	21⅛	21⅛
Silver	29⅛	25⅜	29	25⅜	27	26⅛	26⅛

COMPARISON OF SECURITY PRICES.

Railroads.	Range for 1912. High.	Low.	Range for 1913. High.	Low.	Range for 1914. High.	Low.	Closing. Mar. 31.
Atchison Top & Santa Fe	111¾	103¼	106⅞	90¼	100⅜	93¼	96¾
Atch. Top & Santa Fe, pfd.	104¼	101⅜	102¼	96	101⅝	97¼	100¼
Baltimore & Ohio	111⅜	101¼	106⅝	90⅝	98⅜	87⅜	89¾
Canadian Pacific	283	226½	266¾	204	220½	204⅛	207
Chesapeake & Ohio	85¼	68¼	80	57⅝	68	50¾	53¼
Chicago, Mil. & St. Paul	117⅝	99⅜	116¼	96¾	107⅛	95¾	100¼
Erie R. R.	39⅛	30	32½	20¼	32½	27¼	29⅜
Great Northern, pfd.	143⅜	126	132⅝	115½	134¾	125¼	126⅞
Lehigh Valley	185⅜	155⅞	168⅜	141¼	156¼	142¼	143⅝
Louisville & Nashville	170	138	142¼	126¼	141⅝	133⅜	137½
Missouri, Kansas & Texas	31⅝	25½	29⅝	18⅜	24	16	18¼
Missouri Pacific	47¾	35	43⅝	21¼	30	23¾	25½
New York Central	121¼	106⅛	109¾	90⅜	96⅝	87⅞	89⅞
N. Y., N. H. & Hartford	142¼	126	129⅞	65⅝	78	65¼	69½
Northern Pacific	131½	115⅜	122⅝	101¾	118½	109⅛	113⅝
Pennsylvania R. R.	186⅞	119⅞	123¾	106	115½	108⅝	110¾
Reading	179¼	148⅛	171¾	151⅜	172¼	161¾	165
Rock Island	30½	22⅛	24⅞	11⅝	16⅝	3¾	3¾
Southern Pacific	115½	103½	110	83	99½	88⅛	94½
Union Pacific	176¾	150¾	162¾	137¾	164⅜	153½	159⅜
Wabash	9⅝	3¾	6	2	4⅝	1¼	1⅜
Industrials.							
Amalgamated Copper	92¾	60	80½	61	78⅛	70⅞	76½
Am. Beet Sugar	77	46½	50½	19¾	28⅜	20	23
American Can	47⅜	11¼	16⅞	21	35⅛	28⅝	29⅜
American Can pfd.	126¼	90⅝	129½	80½	96	89	92¼
Am. Car & Foundry	63⅝	49⅜	56⅜	36½	53½	44⅛	50⅛
Am. Cotton Oil	60¼	45½	57⅜	33½	46½	37½	43½
Am. Locomotive	47½	31¾	44½	27	37¼	31⅝	34
Am. Smelting & Refining	91	66½	74¾	58½	71⅛	63⅛	68¾
Brooklyn Rapid Transit	94½	76¾	92¾	83¾	94¼	87½	92⅛
Chino Copper	50⅛	25	47⅝	30⅛	44	37½	42
Colo. Fuel & Iron Co.	43¾	23⅛	41½	24½	34½	28½	31½
Consolidated Gas	149½	135¾	142⅜	125⅛	139½	129½	133¼
General Electric	188½	155	187	129¾	150⅝	140	147
Interborough Metropolitan	22	16¼	19⅝	12⅜	16⅜	14½	15½
International Harvester	126⅞	105¼	111½	96	113½	100⅞	104
International Steam Pump	34	12	18½	4½	9⅞	6⅝	7⅞
Lackawanna Steel	55½	28	49⅞	29⅞	40	34	34¾
National Lead	68¼	51⅛	56¼	43	52	45	49¾
Ray Consolidated Copper	24⅛	16	22	15	22½	17¾	22¼
Republic Iron & Steel	35⅛	15¼	28⅜	17	27	20	23¾
Republic Iron & Steel, pfd.	93⅜	64½	92¼	72	91½	80	87⅜
Sloss-Sheffield	59¾	39¼	45½	23	35	29	31½
Texas Co.	130⅝	81	132½	89	149⅞	118	147⅛
U. S. Rubber	67⅞	45¼	69½	51	63	57¾	61¼
U. S. Steel Corporation	80¾	58¼	69⅛	49⅞	67¼	57½	63⅜
U. S. Steel Corporation, pfd.	117	107¼	110¾	102½	112¾	106½	110¼
Utah Copper	67½	52½	60⅝	39⅝	57½	48⅞	56½
Va.-Carolina Chem.	57¼	40¾	43⅛	22	34⅞	28	31½
Western Union Telegraph	86¼	72	75⅛	54⅛	66⅞	57¾	62½

both at home and abroad.

The lower price of money will no doubt benefit the farmer and perhaps stimulate him to wider activities. This will be good in itself, and may have some effect in lowering the cost of living, and then again it may not. But cheaper money to the farmer cannot and will not prove the impetus to rivive business.

The lower rate of money will make it easier for borrowers, but in itself it will not be sufficient to impart activity to a dead calm, to break the grip of paralysis. Unless it so happens that the new currency bill proves to be a measure of inflation, it won't have the dynamic force to create energy, overcome inertia, and start things going. If, on the other hand, it brings about inflation we shall have a short hurrah run for our money, followed by such a reaction as will make the whole nation cry to heaven from the very hurt.

A great international war might set business going, and so might a change in our tariff—the kind of change that gives courage and confidence to home industries. But we have just had a revision downward, so there is no probability of an immediate revision upward; and there are no instances on record where revision downward, or low tariff, or no tariff, has ever re-energized anything here at home. On the ground of precedent, therefore, we haven't much to look for from our recent tariff legislation, and we are not now at war with any nation; so just what is there in sight, when we get down to the raw cold facts, to justify a belief in an immediate onrush of good times?

Agriculture cannot bring it about; war is not likely to bring it about; our new tariff is certain not to bring it about; the iron and steel trade cannot bring it about; the textile manufactories cannot bring it about; mining in all its different phases cannot bring it about; and all the scattered, smaller manufactories cannot bring it about.

It may well be doubted if anything can bring it about, as matters stand today, except the railroads, and the railroads can bring it about if they are allowed freight rates and passenger rates that will enable them to do business at a rational and fair profit—such a profit as will give place and value to their securities in the markets of the world.

This is what we want at this juncture to give us good times, temporary good times at least, and good times for a long run, if the policies of the government with regard to business, the tariff, the currency and in other respects are right. If these are not right it is pretty safe to assume that we, as a people, have the good sense and the patriotism, irrespective of politics and politicians, to make them right.

But just why can't agriculture give this impetus to business, and why is it that railroads alone can give this impetus to business? Briefly, the answer is this: Agriculture is a producing and selling industry. If we were growing a vast surplus beyond our own requirements and could sell it abroad, the new money flowing across the ocean would give us the impetus we need. But unfortunately we have no such surplus and are not likely to have.

The steel and iron industry, vast as it is, in the aggregate, and well concentrated as it is, cannot in and of itself revitalize business. Like farming, it is a producing and selling industry. This is equally true of the countless scattered enterprises of one kind and another. Merchandizing doesn't even produce anything. It has to do merely with barter and sale. Banking likewise, produces nothing. It is parasitic in its very nature.

The R. R. Has Nothing to Sell but Service.

The railroad, unlike these other enterprises, has nothing to sell but service. It buys, buys, buys, and all the while buys. It is a purchasing and consuming business, which ranks next to farming in its vast scope. The wages of railroad employees have so far increased that now they call for practically one half of the gross receipts of railroads. The sum total paid out to labor by the American railroads is greater than that paid to labor by any other enterprise in any country of all the world. The railroads hold the key to the present business situation. Give them a chance and they will set the wheels of industry going. But they can do nothing for business and nothing for themselves impoverished and starved as they are by the government.

With a chance to live and to earn enough to make their securities safe and attractive to investors the world over, they could sell them like a shot.

What we need and must have at this juncture is new money and lots of it. The railroads alone can find this new money. But it is up to the government to decide

whether they shall find it or not. So far the government in its non-constructive or, if you will, destructive policy has refused the railroads a chance for their lives.

The Spirit of Co-operation.

If the government would get back of the railroads and give them a lift, the railroads would get back of business from one end of this country to the other and give it a lift—would get its great broad shoulder under business and heave it into action. Assure investors that our railroads have back of them the great American people, the good feeling and spirit of co-operation of the American people, and have back of them as well the strong, helpful hand of the government, untold money would flow into this country from abroad and vast sums of sleepy money tucked away in odd places here at home would straightway come out of its hiding and go into railway securities.

And what wouldn't this money mean to us—all this vast aggregate of new money in the coffers of the railroads to be spent for labor, for betterment, and for new undertakings? The railroads must have new rails, new cars, new engines, new ties, new bridges, new stations, better roadbeds and a thousand other things. They must add to their sidings, double their trackage, and extend their roads into new territory. All this means work for idle men and full envelopes on Saturday nights.

Indeed, the railroads would begin buying on so tremendous a scale that our steel mills and other concerns having to do directly and indirectly with railroad supplies would be taxed to their capacity and beyond their capacity. And the high pressure activity in these lines would electrify the whole country and set every spindle spinning and every wheel of industry bounding into action. And there would be no idle men, no idle cars, no shuttered factories, no depression, no blues. Activity and enterprise and achievement would grip the country from ocean to ocean and from the Gulf to the northern border.

This is not an idle fancy. It is the very thing that would happen, and such a happening is the very thing we all want. And if we all want it, why shouldn't we have it. We are the government; the government is the thing of our creation, the servant to do our bidding.

The question, then, is this: shall we give the railroads a square deal, or shall we continue to punish them for the sins of a former period, when the relations of railroads to the public were not understood as they are now? In the old days people held to the idea as a matter of course that railroads, owned by private capital, were private property. We didn't know much about public service concerns then. We accepted the theory as a matter of course that the biggest shippers should get the lowest rates. Wholesalers bought at lower prices than retailers, so why not wholesale rates to big shippers?

But once the public service conception was fixed in our minds we saw the railroads in an entirely different light. Naturally railroad managements fought for the independence they had always had, and doubtless fought honestly, influenced by their interests. But all this has changed now. Ten years of discussion has brought capitalists and public, the fair-minded men among each, to a common understanding of the relations of capital to the people, of trusts to the people, of the railroads to the people, and of the relation of telegraph, telephone and all other common carriers to the people.

False Economy.

We ought to have, and I am satisfied that the American people demand, the best and safest railroads in the world. It is a certainly that we cannot have them without paying the price—railroads with every new device, every improvement that means safety and better service. And we can well afford to pay the price when the failure to do so means inferior railroads, dangerous railroads.

Forcing railroad managements into a position where they have been compelled to squeeze paltry dividends out of half-fed, half-nourished properties that they might keep their roads out of bankruptcy is a rotten policy.

Legitimate economies are fundamentally necessary to honest, able management, and whatever the government has accomplished in the way of cutting out waste and introducing first rate standards of economy is, of course, very much worth while. But to starve railroads into other economies, such, for instance, as skimping on roadbeds, skimping on bridges, skimping on rails, skimping on rolling stock, skimping on safety devices, and skimping all along the

line, is quite another matter. They are costly savings to the people, dearly bought savings.

I hold no brief for the railroads; I am not speaking for myself as I hold no railroad stocks, and don't wish to hold any under present conditions. Neither am I speaking for those who do hold railroad stocks. I am speaking for idle men, speaking in the interest of better business, speaking for a square deal for the railroads, for safe railroads, sound railroads.

For the government to stand back of railway labor, morally sustaining it in its demands, for shorter hours and better wages, as the government has done, at the same time denying railroads the right to increase their incomes sufficiently to meet the increased cost of operation is of the nature of confiscation, and no honest citizen of this country believes in any such thing or would himself, with full realization of the facts, be a party to it.

Let us have peace. Let this bitterness against the railroads cease. There is nothing in all this warfare for you or for me. Give the railroads a chance to prosper and we prosper with them; starve them and we starve with them.

TOPICAL TALKS ON IRON.

XIII. Structural Steel Consumption.

The consumption of iron and steel has a way of growing contrary to expectations. In the past those who have come nearest to predicting the wonderful increases in consumption which have occurred have been the philosophically inclined rather than the practical men. The latter, imbued with thoughts of the permanence of the structures they see erected, have been rather disposed to conclude from time to time that the work has been done, and will not need to be done again.

With respect to structural steel such a disposition has been particularly in evidence. It has been assumed that a skeleton steel building would last half a century or longer, hence as population increases by only about 20 per cent per decade the time would come when nearly all the large buildings required would have been erected.

Actual experience has not been in keeping with any such theory. The production of steel structural shapes has been increasing almost as rapidly in point of percentage in recent years as in the earliest years of the skeleton structure, while in point of tonnage the increase has been more rapid of late. The total amount of steel used in the erection of large buildings has increased more rapidly than the consumption of structural shapes, for the reason that other steel equipment in large buildings finds more and more employment. For instance, there is more piping than formerly. Office buildings now are piped for vacuum cleaning, something unknown a few years ago. Possibly in a few years artificial ventilation will become as common; it is practiced to a limited extent.

Perhaps the most important influence which has caused the use of steel in large buildings to increase rapidly is that the amount of steel required is not in direct ratio to the size of the building. To illustrate, a twenty-story building cannot be erected with the amount of steel required to erect two ten-story buildings. If one ten-story building were placed upon another, the lower would be unsafe, its skeleton being only adequate for its own weight. The elevators would be likewise insufficient, for the elevators of the upper building would deliver the passengers only to the top of the lower building, and thus it would go throughout. As buildings are erected higher and higher the quantity of steel required per inhabitant increases.

Precisely the same influence exists with respect to the tonnage of steel required in bridges. As they are made of longer and longer spans, the amount of steel required to carry a certain live load increases. The largest bridge now being erected probably involves five times the tonnage of steel involved in the largest bridge erected ten years ago.

It is probably safe to estimate that 10 per cent of the total steel production at the present time is going into buildings, including office buildings, hotels, apartment houses, manufacturing buildings are warehouses. An exact count would probably show considerably more than 10 per cent, possibly even 15 per cent, and that without counting any material used in railroad structures.

IRON AND STEEL.

PIG IRON IN MARCH.

March was a month of few developments in the pig iron market, and those few developments were chiefly negative. There appeared, for instance, a disinclination on the part of quite a number of consumers not to take the full quotas of pig iron for which they had contracted. The market became extremely dull in all quarters. It is true that the markets had been growing quieter since early in the year, but early in February there had been a moderate degree of activity in the valleys, and in other districts there was moderate small lot buying throughout February. March, however, showed almost complete stagnation.

A curious fact is that in some districts pig iron prices have been marked up, both Cleveland and Buffalo furnaces putting up their prices by 50 cents a ton during the month. It is needless to mention that no sales of importance have been effected at the advanced asking prices. The only question is whether purchases have been lacking because prices were advanced, or prices were advanced because purchasers were not in sight.

That the advances just mentioned were perhaps not based upon actual market conditions is suggested by the fact that under stress of competition prices in some other districts declined. In the valley market both Bessemer and basic declined 25 cents (to $14 and $13 respectively) while southern iron dropped a like amount, $10.50 Birmingham. The weakening in southern iron is particularly significant, since southern iron has almost invariably led the general market in both advances and declines.

The general price movement in pig iron is shown by the following statement of the movement of our **composite pig iron:**

	On first of month.	Change during month.
January (1913)	$17.450	—17.5c
February	17.275	—33.0
March	16.945	32.0
April	16.621	—61.0
May	16.015	—76.5
June	15.250	—55.0
July	14.700	—25.0
August	14.450	+17.5
September	14.625	+15.0
October	14.775	—20.0
November	14.525	—47.5
December	14.050	—50.5
January (1914)	13.545	—12.0
February	13.425	+45.0
March	13.875	— 2.5
April	13.85	

Lake Superior Ore.

While there is no accepted time for the opening of the Lake Superior ore market, the lateness or earliness of the development of a schedule of prices for a shipping season usually furnishes a key to the state of the iron trade in general. When there is heavy demand for material the opening is early, and indeed in one instance prices were named and business was transacted in November, before shipments were concluded for the preceding season.

The fact that ore prices have not been announced up to the first week in April is thus somewhat significant of dull business, but not as significant as it would have been a few years ago, for since 1907 late openings have been much more common than previously. There is really no good reason why ore prices should be made long in advance of the opening of the shipping season. The ore interests may assert that they need to know what provision to make for shipping the ore, but in recent years it has been discovered that an ore sales contract is like other bargains, there are two parties. Whether this discovery follows the discovery of the Sherman law might be an interesting one to debate, though the debate would possibly be somewhat one-sided. At any rate, while it may be of interest to the ore producer to know how much ore he is to be called upon to ship, it is undoubtedly of interest to the purchaser, whose money is involved, to have an idea whether he will be able to use the ore he may buy. The furnaceman in making a purchase must look to about June 1st of the following year. If the ore price is made April 1st and he then purchases he must look forward 14 months, which is a very long time, and one that ought not to be materially increased by an early ore opening. It is a historic fact that every early opening on record, with a single exception, has proved disastrous to the ore buyer, through the pig iron market breaking long before the ore involved could be

IRON AND STEEL.

used. The single exception furnishes an excellent test of the justice of the rule, for the exception is the opening of the 1906 season. This occurred December 5, 1905, and the furnaces did not lose. When one recalls, however, how exceptional was the period of iron market prosperity then in its early stage it can be seen that the exception to the rule will fit ordinary conditions.

It is possible that the Lake Superior ore trade is entering upon a period which may be distinct enough to constitute a new era. The ore interests have presumably made a great deal of money in recent years, while the merchant blast furnaces have made very little, and it is a question whether the natural play of trade influences will indefinitely allow such a division. Our suggestion will hardly be questioned, we think, except perhaps by some merchant furnace interests who will deny that there has been any division at all, mentioning the time honored anecdote of the boy eating an apple who when solicited for the core blandly replied that there was not going to be any. The developments which must necessarily follow the steel corporation's surrender of the Hill ore lease, must change relations between buyer and seller to a considerable extent, but possibly more in 1915 than in this present year.

Connellsville Coke.

The Connellsville coke market has given a remarkable exhibition of steadiness. It has not departed much from $2.00 a ton for months. At times the price has been shaded slightly while at other times a slightly higher figure has been obtained, though only for exceptionally desirable brands. It is right that the coke market should be steady. The investment is chiefly in the coal acreage, and if a reasonable value be placed upon the acreage, neither too high nor too low, the price of coke should not vary much, for the operation is simply that of sinking a certain amount of fixed capital and getting it back through a period of years. Each acre exhausted means about 7,000 tons of coke, and it is reasonable that each 7,000 tons of coke made should return its proportion of principal and interest.

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered).

	Bessemer, Valley	Basic, No.2 fdy, Valley		Basic Phila.	No. 2 Phila.	No. 2 X fdy, Buffalo.	No. 2 fdy — Cleveland.	No. 2 fdy — Chicago.	Ferro- Birmingham.	Ferro- manganese.*	Furnace coke†
1913—											
Jan.	17.25	16.50	17.50	18.00	18.49	17.50	17.75	18.48	13.72	65.00	3.85
Feb.	17.25	16.43	17.12	17.75	18.23	17.22	17.44	17.87	13.46	65.00	2.60
Mar.	17.20	16.14	16.60	17.50	17.81	16.79	16.75	17.75	13.04	64.00	2.47
April	17.00	15.87	15.66	17.00	17.49	15.96	15.41	17.60	12.60	61.00	2.20
May	17.00	15.25	14.75	16.50	16.77	15.58	15.56	16.67	11.74	61.00	2.15
June	16.34	14.50	14.18	16.50	16.26	14.43	14.95	16.24	10.89	61.00	2.20
July	15.86	14.40	13.88	15.90	15.66	14.01	14.68	15.38	10.50	59.00	2.50
Aug.	15.63	14.09	13.94	15.25	15.56	14.20	14.50	15.44	10.85	56.70	2.50
Sept.	15.75	14.00	14.00	15.25	15.97	14.25	14.55	15.50	11.20	54.50	2.37
Oct.	15.67	13.97	13.83	15.25	15.94	14.25	14.73	15.50	11.48	50.28	2.10
Nov.	15.23	13.28	13.57	15.13	15.61	13.96	14.35	15.43	10.80	50.00	1.88
Dec.	14.95	12.83	13.38	14.75	14.98	13.32	13.76	14.83	10.50	47.00	1.77
Year	16.26	14.77	14.87	16.23	16.56	15.12	15.37	16.39	11.73	57.87	2.38
1914—											
Jan.	14.06	12.51	13.00	14.25	14.69	12.76	13.30	14.35	10.63	43.42	1.88
Feb.	14.13	13.21	13.21	14.00	14.88	13.02	13.56	14.46	10.52	38.33	1.90
Mar.	14.20	13.05	13.25	14.10	15.00	13.38	13.75	14.55	10.75	38.40	1.92

*Contract price, f.o.b. Baltimore; †Prompt, f.o.b. Connellsville ovens.

IRON AND STEEL.

During March the coke market weakened slightly, but hardly to a greater extent than was involved in giving up hope of obtaining a higher price than $2.00 for second quarter contracts.

STEEL IN MARCH.

The steel market lost ground very decidedly in March, but not so much through new developments as through a continuance of conditions which had come to prevail to a great extent before the end of February. The January buying movement was accepted at the time as being a temporary affair, based upon buyers recognizing that prices had stopped declining and concluding to replenish their greatly depleted stocks. A February lull was accordingly expected, and when this came it was not necessarily a really unfavorable development, but it was a February lull, not a February-March-April-etc. lull, that was expected. The prolongation of the lull into March, with a decided accentuation of the intensity, was contrary to expectations and naturally caused buyers to begin looking for a fresh low point in prices.

The February lull was due to the technical position of the iron and steel market; it came from within. The March stagnation did not come from within the market; it came from without, through something going decidedly wrong with the state of business in general, something that was as definite and apparent in its results as it was indefinite and elusive in its origin and nature.

During the fore part of March there was good ground for accepting the stagnation as a condition arising from unknown and uncontrollable causes, but so severe was the effect upon the steel market that the steel market's technical position became seriously affected, though buyers becoming convinced that lower prices were certain to come and that all possible reserve should be exercised in making purchases. Indeed so great was the change in the market that many cases could be cited of contracts for second quarter delivery which on February 15th looked extremely favorable to the purchaser, but on April 1st seemed so unfa-

FINISHED STEEL PRICES.

(Averaged from daily quotations, f.o.b. Pittsburgh.)

	Shapes.	Plates.	Bars.	Pipe.	Wire.	Wire Nails.	Cut Nails.	Sheets Black.	Sheets Galv.	Tin plate.	Composite Finished steel.
1913—											
January	1.50	1.50	1.40	80	1.55	1.75	1.70	2.32	3.47	3.60	1.7737
February ..	1.45	1.45	1.40	80	1.55	1.75	1.70	2.35	3.50	3.60	1.7625
March	1.45	1.45	1.40	80	1.56	1.76	1.70	2.35	3.50	3.60	1.7646
April	1.45	1.45	1.40	79½	1.60	1.80	1.70	2.35	3.45	3.60	1.7743
May	1.45	1.45	1.40	79½	1.60	1.80	1.70	2.35	3.40	3.60	1.7786
June	1.45	1.45	1.40	79	1.55	1.75	1.70	2.29	3.38	3.60	1.7719
July	1.45	1.45	1.40	79	1.50	1.70	1.70	2.25	3.31	3.60	1.7600
August	1.45	1.44	1.40	79½	1.47	1.67	1.60	2.20	3.25	3.60	1.7400
September..	1.40	1.40	1.40	80	1.43	1.63	1.60	2.12	3.17	3.60	1.7093
October ...	1.39	1.36	1.39	80	1.40	1.60	1.60	2.04	3.08	3.50	1.6779
November	1.34	1.29	1.30	80	1.40	1.60	1.60	1.98	2.98	3.40	1.6203
December ..	1.24	1.21	1.22	80	1.35	1.55	1.60	1.90	2.90	3.40	1.5558
Year	1.42	1.41	1.38	79¾	1.50	1.70	1.66	2.21	3.28	3.56	1.7241
1914—											
January	1.20	1.20	1.20	80	1.33	1.53	1.60	1.86	2.86	3.40	1.5394
February ..	1.25	1.21	1.22	79½	1.40	1.60	1.60	1.95	2.95	3.40	1.5794
March	1.21	1.18	1.20	79½	1.40	1.60	1.60	1.95	2.95	3.40	1.5638

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vorable that purchasers were refusing to specify.

If the present stagnation in the steel market continues much longer what is equivalent to a short interest will be created, of sufficient importance to provoke a decided increase in activity, for prices have shown a yielding tendency and a trading basis can be found. What has been said, of course, refers to the technical position of the steel market. It must, apart from this, be profoundly affected by any improvement which may occur in business generally, or by such other extraneous influences as may be exerted, easily the most important of such possibilities, being that of an Interstate Commerce Commission decision favorable to the railroads in the eastern rate case. There is no question that such a decision would exert an influence upon the steel trade of profound importance, but these general matters are properly discussed in our leading article.

Prices, Production, Orders.

The trend of steel prices in March was downwards rather than upwards, but only a few products definitely yielded in price. Broadly speaking, bars, plates and shapes declined a dollar a ton, the quotable market at the beginning of April, on attractive or-

U. S. STEEL CORPORATION'S OPERATIONS.

EARNINGS AND UNFILLED ORDERS.

Earnings by Quarters.

Net earnings by quarters since 1908:

Quarter.	1913.	1912.	1911.
1st	$34,426,801	$17,826,973	$23,519,203
2nd	41,210,813	25,102,265	28,108,520
3rd	38,450,400	30,063,512	29,522,725
4th	23,036,349	35,185,557	23,155,018
Year	137,133,363	108,178,307	104,305,466

	1910.	1909.	1908.
1st	$37,616,876	$22,921,268	$18,229,005
2nd	40,170,960	29,340,491	20,265,756
3rd	37,365,187	38,246,907	27,106,274
4th	25,901,730	40,982,746	26,246,675
Year	141,054,753	131,491,412	91,847,710

Unfilled Orders.

(At end of the Quarter):

	First.	Second.	Third	Fourth.
1903..	5,410,719	4,666,578	3,278,742	3,215,123
1904..	4,136,961	3,192,277	3,027,436	4,696,203
1905..	5,579,560	4,829,655	5,865,377	7,605,086
1906..	7,018,712	6,809,584	7,936,884	8,489,718
1907..	8,043,858	7,603,878	6,425,008	4,642,553
1908..	3,765,343	3,313,876	3,421,977	3,603,527
1909..	3,542,590	4,057,939	4,796,833	5,927,031
1910..	5,402,514	4,257,794	3,158,166	2,674,757
1911..	3,447,301	3,361,058	3,611,317	5,084,761
1912..	5,304,841	5,807,346	6,551,507	7,932,164
1913..	7,468,956	5,807,317	5,003,785	4,282,108

BOOKINGS AND SHIPMENTS.

In this table, first two columns, percentages of bookings and shipments to total capacity, are our estimates, while last column is derived from official reports of "unfilled tonnage" while third percentage column is directly computed from this tonnage column.

1912—	Shipments.	Bookings.	Difference.	Difference.
	%	%	%	Tons.
January	70	95	+25	+294,960
February ...	78	85	+ 7	+ 74,479
March	85	68	—17	—149,359
April	92	124	+32	+360,044
May	93	101	+ 8	+ 86,098
June	94	99	+ 5	+ 56,363
July	82	95	+13	+149,733
August	92	110	+18	+206,296
September ..	98	135	+37	+388,132
October	98	187	+89	+1,042,874
November ..	96	120	+24	+258,512
December ..	97	104	+ 7	+ 79,281
January 1913	98	89	— 9	—104,796
February ...	98	82	—16	—170,654
March	93	77	—16	—187,758
April	93	51	—42	—490,194
May	95	41	—54	—654,440
June	93	47	—46	—517,005
July	90	55	—35	—407,961
August	90	75	—15	—175,888
September ..	92	74	—18	—219,683
October	87	74	—40	—490,018
November ..	70	59	—11	—117,420
December ..	50	40	—10	—114,239
January 1914	55	83	+28	+331,572
February ..	67	105	+38	+412,764

IRON AND STEEL.

ders, being 1.15c for plates and bars and 1.20c for shapes, but 1.15c had been shaded on plates in a few instances and 1.20c had been shaded on shapes in quite a number of instances. In tubular goods there was possibly a slight increase in the irregularities which are rarely entirely absent from this market. In wire products prices are fairly well maintained. In sheets there are slightly increased reports of irregularities but the market can hardly be regarded as quotably lower. In tin plate the market is undoubtedly stronger.

The production of steel has undergone a slight decrease. At the beginning of April the mills are operating at an average of about 65% of capacity, comparing with an average of between 70 and 75% maintained from about the beginning of February until the middle of March.

New buying was extremely light in March. Specifications were fair in point of tonnage but very much smaller than would have been expected from the viewpoint of early February, for then the market alignment was that second quarter material was higher than first quarter, and the inference from that viewpoint would be that practically all buyers would specify as heavily in March as their contracts permitted. The total bookings of the steel mills in March, of actual shipping orders, were probably in the neighborhood of one-half of capacity, or not over two-thirds of the actual shipments.

WESTERN IRON AND STEEL.

Fundamental conditions were never better in the West than at the present time, but, in the words of one of the leading manufacturers in this territory, "business don't act right". Some mysterious influence seems to set at naught all the conditions that invite confidence and business activity.

Agricultural conditions are almost ideal for this season. The whole country is well provided with moisture for making spring crops. The condition of winter wheat is very high. A railroad man who recently came through Kansas went out and dug down at several points to test the amount of moisture, and found the ground wet to a depth of seven or eight feet, an unusual condition. Crops will thrive if no rain falls for several months in the area which suffered from drouth last summer.

The leading banks are optimistic in their view of conditions. They say there is no justification for the fear that the organization of the new reserve associations will contract banking funds. It will be six to twelve months, anyway, before subscriptions are called under the new law, and the government funds which will be released from sub treasuries will more than offset the funds temporarily taken out of circulation. Interest rates have declined and the banks welcome any good business in the way of loans. Cheaper money will stimulate improvements and contract work.

In the view of the banks the only cause of present dulness in general trade is that the railroads are not buying. This seems to affect, indirectly, nearly all lines of business.

Pig Iron Market Very Quiet.

There is no business going in the pig iron market, in either northern or southern grades. March has been one of the quietest months ever known in this market. One commission firm sent out a circular hinting that $10.50 might be done, a price under the present market, but could not get a tangible inquiry. Buyers in this territory generally covered their wants for several months in the buying movement during January and February. It was noted in this report at the time that the market went off after the largest buyers had closed, an unusual condition, and other incidents of this nature have made buyers very cautious.

No Railroad Buying.

The railroads have been remarkably successful during March in keeping out of the market. They remind one of the crazy farmer who tried to educate his horse to live without eating. He got the horse down to one straw a day, but the beast spoiled the experiment by dying. Railroad buying at the present time is at the rate of about one straw a day. Large rail orders which were expected have not materialized, and

IRON AND STEEL.

specifications for track supplies are surprisingly small.

Merchant Demand Better.

The general demand outside of railroad channels is more encouraging. The sheet business is good. Small orders for structural shapes and plates are coming in at a fair rate, and this end of the market is in fairly satisfactory condition.

Bars Slow but Improving.

The life has been taken out of the market for soft steel bars the past winter by conditions in the agricultural implement trade. The implement manufacturers had done a record breaking volume of business for several years, and went on running at full capacity last year. The farmer was more frightened at tariff revision and the change at Washington, and did not buy. The result was a badly overstocked condition in this trade. Dealers bought sparingly for shipment this spring, and the manufacturers were discouraged in working off the stocks they had carried over.

March, however, has brought distinct improvement in this trade. The implement people are now getting telegraph orders for rush shipments which are cleaning up their stocks, and the manufacturers have grown more cheerful each day.

These peculiar conditions have made Chicago a storm center in bar prices, which have become very irregular. On desirable business 1.05 Pittsburgh has been done by eastern mills selling in this territory, and it is now a case of waiting for the storm to blow over.

The general expectation is that crop conditions, when they become known, will put life and confidence into the market.

RAILROAD EARNINGS.

The following table is compiled from the monthly reports of the Interstate Commerce Commission, and cover all railroads in the United States having gross income of $1,000,000 or over per year The statements are per mile of road operated, and show gross revenue from operations, operating expenses and net operating revenue.

	1911-12			1912-13			1913-14		
	Revenue.	Expen-es	Net.	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.
July ...	$1,025	$698	$327	$1,113	$750	$363	$1,161	$814	$348
Aug. . .	1,119	726	393	1,211	776	435	1,219	831	388
Sept. .	1,136	725	411	1,206	775	430	1,237	832	405
Oct. ..	1,175	749	425	1,311	827	484	1,294	870	424
Nov. . .	1,093	734	360	1,213	806	407	1,163	824	339
Dec. .	1,046	720	326	1,159	799	360	1,100	800	299
Jan. ...	932	728	203	1,091	807	285			
Feb. . .	964	710	254	1,015	756	260			
Mar. . .	1,051	746	305	1,085	803	283			
April .	974	717	257	1,068	806	263			
May .	1,030	735	295	1,154	834	321			
June .	1,075	735	339	1,140	803	337			
Totals.	$12,605	$8,718	$3,888	$13,787	$9,554	$4,233			

PRICE CHANGES.

Price changes in merchant bars, structural shapes, plates, wire nails merchant pipe, sheets and tin plates are given below, with dates, from the beginning of 1912. These are the commodities used in compiling our **composite finished steel**. In some cases the dates named are those upon which prominent producers announced price changes, but more frequently dates are merely those upon which our quotations were changed.

1912—			
Feb. 7	Tin plate	3.40	to 3.30
" 7	Sheets	1.90	to 1.85
" 8	Bars	1.15	to 1.10
" 8	Plates	1.15	to 1.10
" 8	Shapes	1.15	to 1.10
" 26	Sheets	1.85	to 1.80
Mar. 20	Shapes	1.10	to 1.12½
" 21	Shapes	1.12½	to 1.15
" 21	Plates	1.10	to 1.12½
April 1	Plates	1.12½	to 1.15
" 9	Sheets	1.80	to 1.85
" 10	Bars	1.10	to 1.15
" 10	Plates	1.15	to 1.20
" 10	Shapes	1.15	to 1.20
" 22	Sheets	1.85	to 1.90
" 24	Bars	1.15	to 1.20
" 24	Plates	1.20	to 1.25
" 24	Shapes	1.20	to 1.25
May 7	Tin plates	3.30	to 3.40
June 1	Pipe	81%	to 80%
" 26	Bars	1.20	to 1.25
" 26	Shapes	1.25	to 1.30
" 26	Plates	1.25	to 1.30
July 1	Sheets	1.90	to 1.95
" 9	Tin plates	3.40	to 3.50
" 22	Wire nails	1.60	to 1.65
" 24	Sheets	1.95	to 2.00
" 25	Pipe	80%	to 79%
Aug. 1	Bars	1.25	to 1.30
" 1	Plates	1.30	to 1.35
" 1	Shapes	1.30	to 1.35
" 13	Sheets	2.00	to 2.05
" 20	Plates	1.35	to 1.40
" 20	Shapes	1.35	to 1.40
" 26	Wire nails	1.65	to 1.70
Sept. 4	Tin plate	3.50	to 3.60
" 4	Sheets	2.05	to 2.10
" 10	Sheets	2.05	to 2.10
" 11	Sheets	2.10	to 2.15
" 26	Bars	1.30	to 1.35
Oct. 8	Plates	1.40	to 1.45
" 8	Shapes	1.40	to 1.50
" 9	Bars	1.35	to 1.40
" 10	Plates	1.45	to 1.50
" 10	Shapes	1.45	to 1.50
" 17	Sheets	2.15	to 2.25
Dec. 10	Wire nails	1.70	to 1.75
1913—			
Jan. 2	Pipe	79%	to 80%
" 14	Sheets	2.25	to 2.35
Feb. 1	Plates	1.50	to 1.45
" 1	Shapes	1.50	to 1.45
Mar. 24	Wire nails	1.75	to 1.80
April 14	Pipe	80%	to 79½%
May 27	Pipe	79½%	to 79%
June 2	Wire nails	1.80	to 1.75
" 11	Sheets	2.35	to 2.30
" 18	Sheets	2.30	to 2.25
July 1	Wire nails	1.75	to 1.70
Aug. 9	Pipe (¾-3-in.)	79%	to 80%
" 12	Wire nails	1.70	to 1.65
" 21	Sheets	2.25	to 2.15
" 27	Plates	1.45	to 140
Sept. 1	Shapes	1.45	to 1.40
" 22	Sheets	2.15	to 2.05
Oct. 2	Tin plates	3.60	to 3.50
" 3	Wire nails	1.65	to 1.60
" 16	Plates	1.40	to 1.35
" 21	Plates	1.35	to 1.30
" 23	Shapes	1.40	to 1.35
" 24	Sheets	2.05	to 2.00
" 27	Pipe	2½%	extra discount
" 28	Bars	1.40	to 1.35
Nov. 3	Tin plate	3.50	to 3.40
" 7	Bars	1.35	to 1.30
" 17	Sheets	2.00	to 1.95
" 25	Bars	1.30	to 1.25
" 25	Plates	1.30	to 1.25
" 25	Shapes	1.35	to 1.30
" 28	Wire nails	1.60	to 1.55
Dec. 2	Sheets	1.95	to 1.90
" 3	Shapes	1.30	to 1.25
" 4	Plates	1.25	to 1.20
" 11	Bars	1.25	to 1.20
" 22	Shapes	1.25	to 1.20
" 31	Sheets	1.90	to 1.80
1914—			
Jan. 6	Wire nails	1.55	to 1.50
" 7	Sheets	1.80	to 1.85
" 13	Wire nails	1.50	to 1.55
" 23	Sheets	1.85	to 1.90
" 30	Sheets	1.90	to 1.95
Feb. 2	Pipe	80%	to 79½%
" 2	Wire nails	1.55	to 1.60
" 4	Shapes	1.20	to 1.25
Mar. 9	Shapes	1.25	to 1.20
" 20	Plates	1.20	to 1.15
April 1	Bars	1.20	to 1.15

COMPOSITE STEEL.

Computation for April 1, 1914:

Pounds.	Group.	Price.	Extension.
2½	Bars	1.15	2.875
1½	Plates	1.15	1.725
1	Shapes	1.20	1.800
1½	Pipe (¾-3)	2.00	3.000
1½	Wire nails	1.60	2.400
1	Sheets (28 bl.)	1.95	1.950
½	Tin plates	3.40	1.700
10 pounds			15.450

One pound 1.5450

(Averaged from daily quotations.)

	1910.	1911.	1912.	1913.	1914.
Jan...	1.8625	1.7415	1.5123	1.7737	1.5394
Feb..	1.8475	1.7520	1.4878	1.7625	1.5794
Mar..	1.8475	1.7590	1.4790	1.7646	1.5638
April.	1.8400	1.7600	1.5206	1.7743	.....
May..	1.8325	1.7510	1.5590	1.7786	.....
June .	1.7955	1.6817	1.5794	1.7719	.....
July..	1.7755	1.6701	1.6188	1.7600	.....
Aug..	1.7550	1.6394	1.6784	1.7400	.....
Sept.	1.7470	1.6090	1.7086	1.7093	.....
Oct...	1.7350	1.5461	1.7588	1.6779	.....
Nov..	1.7305	1.4930	1.7750	1.6203	.....
Dec..	1.7380	1.4812	1.7789	1.5558	.....
Year.	1.7922	1.6570	1.6214	1.7241	.....

SCRAP IRON & STEEL PRICES.

	Melting Steel. Pitts.	Bundled Sheet. Pitts.	No. 1 R.R. Wrought. Pitts.	No. 1 Cast. Pitts.	No. 1 Steel. Phila.	Heavy Melt'g. Ch'go.
1912—						
July	13.57	12.35	14.10	13.37	13.60	12.15
Aug.	13.60	12.25	14.15	13.35	14.25	12.10
Sep.	14.10	12.25	14.50	13.40	15.25	12.50
Oct.	15.75	12.95	15.80	14.05	15.75	14.00
Nov.	15.35	13.12	16.00	15.00	15.30	13.80
Dec.	15.10	13.15	15.75	15.10	14.75	13.40
Year	13.76	11.92	14.16	13.28	13.82	12.30
1913—						
Jan.	15.00	13.10	15.35	14.65	14.50	12.75
Feb.	14.35	12.00	15.35	14.65	13.25	12.65
Mar.	14.35	11.60	15.35	14.60	13.60	12.50
Apr.	14.25	10.50	15.50	14.50	13.75	12.60
May	13.50	10.00	15.00	14.25	12.25	11.50
June	13.20	9.25	14.25	13.50	11.50	10.75
July	12.50	8.75	13.35	12.30	11.15	10.60
Aug.	12.40	8.25	13.25	12.50	11.85	10.75
Sep.	12.60	8.00	13.00	12.50	12.25	10.60
Oct.	12.25	7.40	13.00	12.40	11.20	10.35
Nov.	11.40	6.75	11.85	12.00	10.30	10.25
Dec.	11.00	6.40	11.65	11.60	9.75	9.25
Year	13.07	9.33	13.91	13.29	12.12	11.21
1914—						
Jan.	11.25	7.00	12.20	12.00	10.50	9.25
Feb.	12.00	8.25	12.80	12.50	11.50	10.70
Mar.	12.25	9.00	12.85	12.40	11.50	10.50

COMPOSITE PIG IRON.

Computation for April 1, 1914:

One ton Bessemer, valley	$14.00
Two tons basic, valley (13.00)	26.00
One ton No. 2 foundry, valley	13.25
One ton No. 2 foundry, Philadelphia	15.00
One ton No. 2X foundry, Buffalo	13.75
One ton No. 2 foundry, Cleveland	14.25
One ton No. 2 foundry, Chicago	14.75
Two tons No. 2 Southern foundry Cincinnati (13.75)	27.50
Total, ten tons	$138.50

One ton $13.850

Averaged from daily quotations:

	1910.	1911.	1912.	1913.	1914.
Jan...	17.598	14.375	13.420	17.391	13.492
Feb..	17.215	14.340	13.427	17.140	13.721
Mar..	16.702	14.425	13.581	16.775	13.843
April	16.315	14.375	13.779	16.363	. .
May.	15.750	14.242	13.917	15.682	. .
June .	15.320	14.032	14.005	14.968	.
July .	15.131	13.926	14.288	14.578	. .
Aug..	14.727	13.874	14.669	14.565	. .
Sep...	14.612	13.819	15.386	14.692	. .
Oct...	14.435	13.692	16.706	14.737	. .
Nov..	14.415	13.532	17.226	14.282	. .
Dec..	14.408	13.430	17.475	13.838	.
Year.	15.552	14.005	14.823	15.418	. .

UNFINISHED STEEL AND IRON BARS.

(Averaged from daily quotations.)

	Billets. Pitts.	Sheet bars. Pitts.	Rods. Pitts.	— Iron bars, deliv.— Phila.	Pitts.	Chi'go.
1912—						
Dec.	27.00*	27.50	30.00	1.68	1.65	1.55
Year	22.37	23.01	26.15	1.78	1.38	1.32
1913—			* Premiums for open-hearth.			
Jan.	28.40	29.40	30.00	1.68	1.65	1.60
Feb.	29.00	30.00	30.00	1.67	1.65	1.59
Mar.	29.00	30.00	30.00	1.65	1.65	1.58
Apr.	27.50	28.00	30.00	1.68	1.65	1.58
May	27.00	27.50	30.00	1.68	1.65	1.55
June	26.50	27.50	29.00	1.61	1.65	1.50
July	26.50	27.50	28.50	1.55	1.65	1.50
Aug.	25.75	26.50*	28.00	1.42	1.62	1.44
Sep.	24.00*	25.00*	27.37	1.33	1.59	1.37
Oct.	22.50	23.25	26.50	1.32	1.54	1.27
Nov.	20.50	21.50	26.00	1.30	1.45	1.15
Dec.	20.00	21.00	25.25	1.25	1.37	1.12
Year	25.55	26.43	28.39	1.51	1.59	1.45
1914—						
Jan.	20.00	20.25*	25.75	1.24	1.35	1.11
Feb.	21.00	22.00	26.00	1.28	1.35	1.14
Mar.	21.00	22.00	26.00	1.28	1.35	1.15

* Premiums for Bessemer.

PIG IRON PRODUCTION.

Supplemental statistics for United States, made public March 20th; principal statistics published March, 1914 **Steel and Metal Digest**, pp. 122-3, gathered by Bureau of Statistics, American Iron and Steel Institute.

Production by Grades.

Grades—Gross tons.	1912.	1913.	Change, tons.	Change per cent.
Bessemer and low-phosphorus	11,664,015	11,593,385	— 70,630	— 00.6
Basic	11,117,886	*12,537,746	+1,119,860	+ 09.8
Foundry and ferro-silicon	5,073,873	5,219,918	+ 146,045	+ 02.8
Malleable Bessemer	825,643	993,736	+ 168,093	+ 20.3
Forge pig iron	469,183	324,832	— 144,351	— 30.7
Spiegeleisen	96,346	110,338	— 13,992	+ 14.5
Ferromanganese	125,378	119,496	— 5,882	— 04.6
White and mottled, direct castings, ferro-tit., etc.	54,613	66,850	+ 12,237	+ 22.4
Total	29,726,937	30,966,301	+1,239,364	+ 04.1

* Include a small quantity of basic pig iron made with charcoal.

For preceding years see **Metal Statistics.**

Materials consumed.	1912.	1913.
Iron ore, gross tons	55,656,000	58,274,000
Mill cinder, scale, etc., gross tons	4,319,000	3,009,000
Total of above	59,975,000	61,283,000
Limestone, gross tons	15,092,166	16,072,858
Limestone, pounds per ton of pig iron	1,137	1,163
Coke, net tons	35,721,127	37,217,566
Bituminous coal, net tons	47,022	39,008
Anthracite	73,794	107,318
Charcoal, bushels	35,436,017	35,242,059
Coke and bituminous coal, pounds per ton of pig iron	2,436	2,435

Pig Iron Exports Gross tons.

	1909.	1910.	1911.	1912.	1913.
Canada	44,758	115,642	98,293	208,581	193,396
Austria-Hungary	2,000	1,050	.....	14,806	4,601
Italy	3,130	3,027	7,710	11,954	24,551
United Kingdom	5,980	3,994	8,526	25,617	21,394
Germany	.....	336	293	2,403	1,723
Belgium	10	189	622	1,698	4,715
France	....	48	202	827	752
Denmark	....	.....	125	168	48
Mexico	406	719	444	804	85
Panama	4,907	400	1,079	1,606	3,921
Cuba	178	733	1,122	734	646
Brazil	75	.....	.....	50	1,305
Chile	.....	100	600	1,964	690
Peru	310	550	875	865	172
Philippines	100	407	.....	259	54
Other countries	135	190	908	370	19,595
Total	61,989	127,385	120,799	272,676	277,648

Imports of pig iron, spiegeleisen, ferromanganese, ferrosilicon, etc., gross tons

	1908.	1909.	1910.	1911.	1912.	1913.
Austria-Hungary ...	248	1,973	6,069	590	400	340
Germany	3,008	3,185	7,417	4,286	5,924	8,358
Netherlands	1,226	7,137	15,737	9,719	492	460
United Kingdom ...	75,757	151,563	182,082	114,947	110,526	132,906
Canada	1,976	2,844	3,175	4,260	4,998	4,609
China	3,194	4,836	13,924	11,857	1,750	3,017
Other countries	6,793	4,904	8,829	2,800	5,235	6,745
Total	92,202	176,442	237,233	148,459	129,325	156,435

IRON AND STEEL IMPORTS AND EXPORTS.

	December. 1913.	November. 1913.	December. 1912.	12 months ending Dec. 1913.
Scrap	7,689	11,334	9,326	97,429
Pig iron	25,440	18,293	24,011	277,648
Billets, sheet bars, etc.	2,232	1,052	22,454	91,487
Wire rods	7,451	1,032	6,984	61,682
Rails	22,518	24,911	35,279	460,553
Steel bars	14,912	15,873	16,350	211,716
Iron bars	2,652	2,508	2,234	16,615
Structural	37,754	35,802	25,215	416,264
Hoop, band and scroll	1,419	1,261	1,415	16,818
Galvanized iron sheets and plates	3,799	4,129	10,273	77,210
All other iron sheets and plates	196	1,106	2,542	21,767
Steel sheets	10,072	6,716	12,180	140,634
Steel plates	12,694	9,274	18,695	223,635
Tin plates	3,595	2,455	4,534	59,018
Barbed wire	7,863	7,428	6,769	82,051
All other wire	8,856	8,398	10,677	108,234
Cut nails	387	250	540	3,789
Wire nails	3,063	2,682	4,281	43,637
All other, including tacks	359	278	377	3,970
Pipes and fittings	21,699	18,886	18,330	301,790
Railroad spikes	580	451	1,160	11,328
Bolts, nuts, rivets, washers	1,886	1,469	1,591	20,737
Horse shoes	114	110	102	1,247
Cast radiators	489	263	640	8,064
Totals	195,719	175,961	235,959	2,759,232

IRON AND STEEL IMPORTS, GROSS TONS.

	December 1913.	November 1913.	December 1912.	12 months ending Dec. 1913.
Scrap	1,312	2,754	2,712	44,153
Pig iron	12,449*	13,761	12,062	156,435
Blooms, billets, steel, n.e.s.	2,772†	3,308	1,696	26,638
Wire rods	940	1,279	1,331	16,098
Rails	1,642	1,621	195	10,408
Bar iron	1,528	2,302	2,606	28,243
Structural	1,041	465	254	11,659
Sheets and plates	228	117	204	2,930
Tin plates	4,741	202	171	20,680
Totals	£6,453	25,809	21,231	317,244

* Including 276 tons ferrosilicon. † Unalloyed, 542 tons; alloyed, 2,230 tons.

IRON AND STEEL IMPORTS AND EXPORTS.

VALUE OF TONNAGE AND NON-TONNAGE.

	1909.	1910.	1911.	1912.	1913.	1914.
January ..	$10,329,388	$14,513,394	$18,738,391	$18,451,914	$25,141,409	$16,706,836
February	10,947,159	13,949,082	18,690,792	21,801,570	24,085,871	.....
March	13,873,746	17,253,503	22,591,991	24,474,799	27,201,197	.....
April	13,058,297	16,529,260	24,916,912	26,789,853	27,123,044	.....
May	12,964,367	17,658,042	20,616,795	28,050,247	26,718,970	.....
June	13,779,736	16,503,204	20,310,053	24,795,802	25,228,346	.....
July	11,866,772	16,108,102	17,454,772	24,917,952	24,170,604	.....
August	14,134,487	17,628,537	20,013,557	25,450,107	23,947,440	.....
September ...	12,966,908	16,776,178	19,875,308	23,286,040	22,831,082	.....
October	14,249,598	17,452,085	20,220,833	25,271,559	25,189,745	.....
November ...	14,434,690	18,594,806	20,823,061	26,406,425	20,142,141	.....
December	15,069,246	18,300,710	22,186,996	23,750,864	22,616,701	.....
Totals	$157,674,394	$201,271,903	$249656,411	$289,128,420	$294,435,060	$16,706,836

EXPORTS OF TONNAGE LINES— Gross Tons.

	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January	102,630	74,353	70,109	118,681	152,362	151,575	249,493	118,770
February	87,912	81,773	84,837	110,224	150,919	204,969	241,874	
March	112,787	96,681	94,519	124,980	216,360	218,219	257,053	. . .
April	132,790	93,285	100,911	117,921	228,149	267,313	260,440	..
May	91,543	64,041	109,808	135,306	178,589	307,656	242,188	. . .
June	92,996	69,770	114,724	120,601	174,247	273,188	243,189	. . .
July	122,240	86,796	100,850	127,578	162,855	272,778	237,159	.
August	118,792	86,244	105,690	131,391	177,902	282,645	209,856	.
September	114,819	76,732	97,641	119,155	181,150	248,613	213,058	. . .
October	123,170	85,766	110,821	129,828	186,457	251,411	220,495	..
November	116,309	71,130	116,105	155,138	187,554	233,342	175,961	. . .
December	86,019	77,659	137,806	150,102	190,854	235,959	195,719	. . .
Totals	1,301,979	961,242	1,243,567	1,540,895	2,187,724	2,948,466	2,759,232	118,770

IRON ORE IMPORTS.

	1911.	1912.	1913.	1914
Jan. ..	102,600	154,118	175 463	101,804
Feb. ..	94,820	129,693	188,784	. . .
Mar. ..	134,785	157,469	164,865	.....
April .	133,900	178,502	174,162	. . .
May ..	217,467	194,482	191,860	.....
June ..	118,296	180,122	241,069	.....
July ..	200,845	185,677	272,017	
Aug. ..	175,183	178,828	213,139	.....
Sept. ..	184,456	180,571	295,424	. . .
Oct. ..	172,459	202,125	274,433	.....
Nov. ..	128,019	163,017	179,727	
Dec. ..	148,902	199,982	223,933	.....
Totals	1,811,732	2,104,576	2,594,826	101,804

IRON AND STEEL IMPORTS.

	1910.	1911.	1912.	1913.	1914.
Jan..	56,207	33,071	20,008	21,741	17,835
Feb..	43,613	20,812	11,622	24,904	. . .
Mar..	54,176	23,533	15,466	27,247	. . .
April	47,698	22,392	12,481	25,743	.....
May.	42,569	23,347	15,949	28,572	.....
June	30,322	29,399	21,407	36,597	.....
July	41,933	15,782	17,882	39,694	. . .
Aug..	36,879	10,944	20,571	18,740	.....
Sep..	30,961	14,039	18,740	19,941	. .
Oct..	31,455	21,035	25,559	20,825	. .
Nov..	40,585	13,880	24,154	25,809	. .
Dec..	31,575	19,665	21,231	26,453	.
Total	487,973	256,903	225,072	317,244	17,835

THE RAIL STATISTICS.

Compiled by the Bureau of Statistics, Philadelphia, of the American Iron and Steel Institute; gross tons throughout.

Years. Rails.	Open-hearth steel.	Bessemer steel.	Rerolled steel.	Electric steel.	Iron.	Total.
1897	500	1,644,520	....		2,872	1,647,892
1898	1,220	1,976,702			3,319	1,981,141
1899	523	2,270,585			3,319	1,981,241
1900	1,333	2,383,654			695	2,385,682
1901	2,093	2,870,816			1,730	2,874,639
1902	6,029	2,935,392			6,512	2,947,933
1903	45,054	2,946,756			667	2,992,477
1904	145,883	2,137,957			871	2,284,711
1905	183,264	3,192,347			318	3,375,929
1906	186,413	3,791,459			15	3,977,887
1907	252,704	3,380,025			925	3,633,654
1908	571,791	1,349,153		....	71	1,921,015
1909	1,256,674	1,767,171		÷	.....	3,023,845
1910	1,751,359	1,884,442		†	230	3,636,031
1911	1,676,923	1,053,420	*91,751	462	234	2,822,790
1912	2,105,144	1,099,926	*155,043	2,436	.....	3,502,780
1913	2,527,710	817,591	*119,390	3,455	.....	3,327,915

Included with Bessemer and open hearth steel rails from 1897 to 1910 inclusive.

* Re-laid from old steel rails and renewed rails which the manufacturers could not classify as Bessemer or open-hearth. ÷ Small tonnages rolled in 1909 and 1910 but included with Bessemer and open-hearth rails for these years.

Alloy rails—Gross tons.	Open-hearth and electric.	Bessemer.	Total.
Titanium steel rails	30,653	17,002	47,655
Manganese, copper, and nickel	2,914	8,950	11,864
Total for 1913	33,567	25,952	59,519
Total for 1912	40,393	108,874	149,267
Total for 1911	38,539	115,450	153,989
Total for 1910	27,389	229,935	257,324
Total for 1909	13,696	35,699	49,395

Kinds of rails—Gross tons.	Under 50 pounds.	50 pounds and less than 85.	85 pounds and over	Total Gross tons.
Open-hearth steel rails	80,761	470,810	1,976,139	2,527,710
Bessemer steel rails	110,795	433,372	273,424	817,591
Other steel rails	78,793	63,100	13,150	155,043
Electric steel rails	56	31	2,349	2,436
Iron rails	None	None	None	None
Total	270,405	967,313	2,265,062	3,502,780

IMPORTS AND EXPORTS OF RAILS.

The following table gives our exports of steel rails to all countries during the last five calendar years, in gross tons. Our imports of steel rails in 1913 amounted to 10,408 gross tons, as compared with 3,780 gross tons in 1912.

Countries—Calendar years	1909.	1910.	1911.	1912.	1913.
Canada	32,988	25,341	88,047	133,351	161,971
Cent. America and Brit. Hond.	22,749	17,927	14,839	15,935	12,418
Mexico	65,838	63,082	35,152	32,402	13,907
West Indies and Bermuda	26,981	41,029	35,892	47,889	32,954
Argentina		64,370	57,385	13,574	41,181
Brazil	101,943	18,400	28,601	45,951	41,215
Other S. and. Amer.		16,384	41,596	54,465	33,525
Japan	9,823	17,977	49,775	54,247	20,820
Other Asia and Oceanica	666 38,905	80,080	57,550	31,387	90,405
Other countries	893	8,590	12,037	17,272	12,157
Total	299,540	353,180	420,874	446,473	460,553

COPPER.

COPPER IN MARCH.

During the first half of March the copper market was in a lifeless condition and prices showed a steady decline. On March 14th the price of Electrolytic was down to 14⅛ cents New York, with the producers quoting 14¼c delivered on their usual terms. Up to that time there was no business, in fact no sign that either the foreign or domestic buyers could be tempted to make purchases on that level, and the trade was expecting to hear at any moment that the producers had made another cut in prices. But instead of reducing the price they advanced it on March 16, 10s in Europe, and ⅛c per pound here, and by this clever manoeuvre they managed to drive the buyers into the market, and were able to dispose of large quantities at better prices than what they were vainly offering to sell at the week before. The success of this movement was due to the large bear account in Standard Copper in London which was frightened into covering, and which in turn frightened the consuming buyers into paying the advanced prices. Usually the producers make large sales and then advance their quotations, but on this occasion they reversed the natural order by first raising the price, and then selling. The producers followed up their advantage by advancing the price by ⅛c to 14.50c on March 18, and to 14⅝c on March 24th, and to 14.75c on April 3rd.

The improvement in the market, however, finds no corresponding improvement in the condition of the copper consuming trade, and despite the heavier exports, and although it may be shown that the deliveries to domestic consumers were larger in March than they were in April, the actual consumption of copper has not increased. No branch of the copper industry in this country is operating at full capacity, and the general average is under 75%. Therefore our requirements are still below 50,000,000 pounds per month, and the outlook at the best promises only a very slow recovery. Whereas in January manufacturers were encouraged to expect that their business would be back to a normal basis before midsummer, they realize now that the slow progress of the last two months means that we are in for a dull spring, and that it will probably not be until late in the year before the mills will be fully engaged.

The consumption of copper in Europe still remains a conundrum, and the very largest dealers are absolutely mystified as to where all the copper is going. We shipped 45,973 tons to Europe in March, making a total of 206,275 tons for the past six months, and it has all disappeared and more besides because the European stocks on April 1 were 3,160 tons less than on October 1.

Our London correspondent advises us

COPPER PRICES IN MARCH.

	— NEW YORK —			— LONDON —	
Day.	Lake.	Elec-trolytic.	Casting.	Standard (Prompt)	Best Selected.
	Cts.	Cts.	Cts.	£ s d	£ s d
1.	.....	.....	.....	.....	.....
2.	14.81¼	14.45	14.30	64 5 0	69 10 0
3.	14.75	14.43¾	14.30	64 2 6	69 0 0
4.	nom.	14.40	14.30	64 2 6	69 0 0
5.	nom.	14.30	14.15	64 5 0	69 0 0
6.	nom.	14.30	14.15	64 5 0	69 0 0
7.	.....	.....	.....	.....	.....
8.	.....	.....	.....	.....	.....
9.	nom.	14.30	14.15	64 0 0	69 0 0
10.	nom.	14.30	14.15	63 18 9	68 15 0
11.	nom.	14.25	14.06¼	63 15 0	68 15 0
12.	14.50	14.15	14.00	63 6 3	68 5 0
13.	14.50	14.12½	14.00	63 0 0	68 5 0
14.	.....	.....	.....	.....	.....
15.	.....	.....	.....	.....	.....
16.	14.50	14.12½	14.00	63 10 0	68 10 0
17.	14.62½	14.18¾	14.06¼	63 16 3	68 15 0
18.	14.75	14.35	14.20	64 8 9	69 5 0
19.	14.75	14.35	14.20	64 5 0	69 5 0
20.	14.75	14.35	14.15	63 18 9	69 0 0
21.	.....	.....	.....	.....	.....
22.	.....	.....	.....	.....	.....
23.	14.75	14.40	14.20	64 12 6	69 15 0
24.	14.81¼	14.45	14.25	65 7 6	69 15 0
25.	14.81¼	14.45	14.30	65 7 6	69 15 0
26.	14.81¼	14.45	14.30	65 0 0	69 15 0
27.	14.81¼	14.40	14.25	64 17 6	69 10 0
28.	.....	.....	.....	.....	.....
29.	.....	.....	.....	.....	.....
30.	14.81¼	14.40	14.25	64 15 0	69 10 0
31.	14.81¼	14.45	14.25	65 2 6	69 10 0
High	14.87½	14.50	14.35	65 8 9	69 15 0
Low	14.50	14.10	14.00	62 18 9	68 5 0
Av'ge	14.722	14.335	14.18	64 5 6	69 2 6

COPPER.

LAKE COPPER PRICES.

Average monthly prices of Lake Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.93	12.75	14.37½	16.89	14.76½
Feb.	13.76½	12.73	14.38½	15.37½	14.98
Mar.	13.71½	12.56	14.87	14.96	14.72
April	13.31	12.41	15.98	15.55	.....
May	12.98	12.32	16.27	15.73	.....
June	12.85½	12.63	17.43	15.08	.....
July	12.62½	12.72	17.37	14.77	.....
Aug.	12.78½	12.70	17.61	15.79	.....
Sept.	12.72	12.57	17.69	16.72	.....
Oct.	12.90	12.47½	17.69	16.81	.....
Nov.	13.00½	12.84	17.66	15.90	.....
Dec.	12.92	13.79	17.62½	14.82	.....
Av..	13.12	12.71	16.58	15.70	.....

ELECTROLYTIC COPPER PRICES.

Average monthly prices of Electrolytic Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.68	12.53	14.27	16.75½	14.45
Feb.	13.51	12.48	14.26	15.27	14.67
Mar.	13.42½	12.31	14.78	14.92½	14.33½
April	12.93	12.15½	15.85	15.48	.....
May	12.67	12.13	16.16	15.63	.....
June	12.59	12.55	17.29	14.85	.....
July	12.36½	12.62½	17.35	14.57	.....
Aug.	12.56	12.57½	17.60	15.68	.....
Sept.	12.49	12.39	17.67	16.55	.....
Oct.	12.77½	12.36	17.60	16.54	.....
Nov.	12.87½	12.77	17.49	15.47	.....
Dec.	12.72½	13.71	17.50½	14.47	.....
Av..	12.88	12.55	16.48	15.52	.....

CASTING COPPER PRICES.

Average monthly price of Casting Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.60	12.39	14.02	16.57	14.27½
Feb.	13.41	12.33	14.02	15.14	14.48
Mar.	13.31	12.20	14.53	14.76	14.18
April	12.87	12.07	15.72½	15.33	.....
May	12.62	12.08	16.01	15.45½	.....
June	12.52	12.40	17.08	14.72	.....
July	12.30	12.49½	17.09	14.40½	.....
Aug.	12.48	12.42	17.35	15.50	.....
Sept.	12.46	12.23	17.51	16.37½	.....
Oct.	12.70	12.21	17.44	16.33	.....
Nov.	12.82	12.61	17.34	15.19	.....
Dec.	12.64	13.56½	17.34	14.22	.....
Av..	12.81	12.42	16.29	15.33	.....

VISIBLE SUPPLY OF COPPER.

Visible supply of copper at the end of each month based on the returns of the Copper Producers' Association and H. R. Merton & Company.

1910—	Stocks in American Producers' hands.	European Visible Supply.	Combined Visible Supply.
Jan. ..	98,463,339	248,209,920	346,673,259
Feb. ..	107,187,992	254,139,200	361,327,192
Mar. ..	123,824,874	249,607,680	373,432,554
April ..	141,984,159	246,863,680	388,847,839
May ..	160,425,973	239,265,600	399,691,573
June ..	168,386,017	232,863,680	401,249,697
July ..	170,640,678	222,295,360	392,936,038
Aug. ..	168,881,245	218,413,440	387,294,685
Sept. ..	148,793,714	210,472,640	359,266,354
Oct. ..	139,261,914	198,065,280	337,327,194
Nov. ..	130,389,069	193,200,000	323,589,069
Dec. ..	122,030,195	187,705,280	309,735,475
1911—			
Jan. ..	142,439,490	*236,976,320	379,415,810
Feb. ..	156,637,770	226,210,880	382,848,650
Mar. ..	162,007,934	223,030,080	385,038,014
April ..	165,555,908	212,280,320	377,836,228
May ..	165,995,932	202,413,120	368,409,052
June ..	157,434,164	195,937,280	353,371,444
July ..	137,738,858	192,584,000	330,322,858
Aug. ..	133,441,501	191,215,360	324,656,861
Sept. ..	140,894,856	191,945,600	332,840,456
Oct. ..	134,997,642	176,816,640	311,814,282
Nov. ..	111,785,188	164,151,680	275,936,868
Dec. ..	89,454,695	158,329,920	247,784,615
1912—			
Jan. ..	66,280,643	153,820,800	220,101,443
Feb. ..	62,939,988	141,135,680	204,075,668
Mar. ..	62,367,557	136,808,000	199,175,557
April .	65,066,029	134,155,840	199,221,869
May ..	49,615,643	117,797,120	167,412,763
June ..	44,335,004	107,817,920	152,152,924
July ..	50,280,421	113,290,240	163,570,661
Aug. ..	46,701,374	113,783,040	160,484,414
Sept. ..	63,065,587	107,403,520	170,469,107
Oct. ..	76,744,964	103,801,600	180,546,564
Nov. ..	86,164,059	96,938,240	183,102,299
Dec. ..	105,312,582	96,857,600	202,170,182
1913—			
Jan. ..	123,198,332	96,546,240	219,744,572
Feb. ..	122,302,198	100,067,520	222,369,718
Mar. ..	104,269,270	†100,965,760	205,235,030
April ..	75,549,108	98,374,720	173,923,828
May ..	67,474,225	90,018,880	157,493,105
June ..	52,904,606	85,559,040	138,463,646
July ..	53,594,945	79,804,480	133,399,425
Aug. ..	38,314,037	76,260,800	114,574,837
Sept. ..	29,793,094	62,314,560	92,107,654
Oct. ..	32,566,382	57,854,480	90,420,862
Nov. ..	47,929,429	59,935,680	107,865,109
Dec. ..	91,438,867	66,124,800	157,563,667
1914—			
Jan. ..	87,296,685	58,114,560	145,411,245
Feb. ..	78,371,852	60,374,720	138,746,572

* Hamburg and Rotterdam stocks included.
† Bremen stocks included.

COPPER—TIN

that he cannot find anyone who believes that all this copper has gone into consumption, even among those who say that the European consumption is enormous, although that is what the statistics imply.

The secret of the matter probably is that there is a quantity of copper stored in Europe in places where it does not get into the statistics. For instance in Italy and Austria and in Antwerp and in unofficial warehouses in England, France and Germany, and it is even likely that some copper is remaining undischarged in various vessels. It stands to reason that the producers would ship copper to Europe whether they had sold it or not, for in the first place it is better to do that than to let it accumulate at the refineries, and secondly it is the easiest method of financing it, as they can always exchange a foreign bill of lading for cash. The statistics don't always tell the whole story for it is no difficult matter to put copper beyond the range of the statistics. For example if 2,500 tons was moved from a New York refinery to a New York warehouse it would be counted among domestic deliveries, because the only stocks that are counted in the American statistics are the stocks at the refineries. In the same way 2,500 tons could be moved from an official to an unofficial warehouse in Europe, and would disappear from the stocks, but the copper would be there just the same.

The statement of the producers operations in March will show a heavy decrease in stocks owing to the large exports, but what the market is more interested in is the domestic deliveries. The price of the metal has been advanced to 14¾c, and it may go to 15.00c in the near future, as predicted, but we cannot help but believe that there can be no sound foundation to the market until there is a recovery in the deliveries to domestic consumers.

TIN IN MARCH.

The market during March has been more or less at a standstill, and has shown no definite trend although the developments have been favorable statistically, for instead of there having been a normal increase in the visible supply of around 1,200 tons in a Banka sale month, there has instead been a decrease of some 300 tons caused by the falling off in shipments from the East Indies and a substantial increase in the American deliveries. The outlook for April is that there will be a further decrease in the visible of around 1,000 tons as the Straits shipments promise to be moderate and the American deliveries as large as in March.

The month opened with the price at 38c and closed at 38⅛, the extreme fluctuation being 37.55 lowest and 38.65 highest. In America, the consumption has been at a record rate for tinplate manufacture but other trades have continued below normal.

TIN PRICES IN MARCH.

	New York.	London — prompts.	London — C. I. F.
	Cts.	£ s d	£ s d
1	.....	.....	.....
2	38.00	173 7 6	175 0 0
3	38.00	173 5 0	175 5 0
4	38.00	173 7 6	175 7 6
5	38.00	174 0 0	176 5 0
6	37.75	172 17 6	176 15 0
7	.....	.....	.....
8	.....	.....	.....
9	37.55	171 17 6	175 5 0
10	37.70	172 12 6	174 10 0
11	38.00	173 10 0	175 17 6
12	37.80	172 10 0	176 0 0
13	37.75	172 10 0	174 15 0
14	.....	.....	.....
15	.....	.....	.....
16	38.05	173 5 0	175 5 0
17	38.20	173 17 6	175 15 0
18	38.35	174 7 6	176 10 0
19	38.12½	173 7 6	177 0 0
20	37.95	172 15 0	175 5 0
21	.....	.....	.....
22	.....	.....	.....
23	38.60	175 5 0	175 12 6
24	38.65	176 5 0	177 7 6
25	38.62½	176 0 0	179 0 0
26	38.10	174 15 0	178 5 0
27	38.25	174 5 0	177 0 0
28	.....	.....	.....
29	.....	.....	.....
30	38.00	172 10 0	175 10 0
31	38.10	173 2 6	174 15 0
High	38.65	176 10 0	179 0 0
Low	37.55	171 17 6	174 10 0
Average	38.084	173 12 4	176 0 2

TIN.

MONTHLY TIN STATISTICS.

Compiled by New York Metal Exchange.

	Mar. 1914.	Feb. 1914.	Mar. 1913.
Straits shipments:			
To Gt. Britain..	2,350	4,265	2,490
" Continent ..	1,040	665	685
" U. S.	735	1,597	1,550
Total from Straits	4,125	6,525	4,725
Australian shipments:			
To Gt. Britain..	150	175	175
" U. S.	nil	nil	nil
Total Australian	150	175	175
Consumption:			
London deliveries	1,401	1,609	1,879
Holland deliveries	1,509	1,258	935
United States*...	4,450	3,300	5,900
Total	7,360	6,167	8,714
Stocks at close of month:			
In London	3,604	3,473	1,138
" " (Stand.)	2,483	1,868	†
" Holland	2,105	1,172	1,875
" United States*	1,997	1,554	1,767
Total	10,189	8,067	4,780
Afloat at close of month:			
To London	2,640	4,696	3,034
" Holland ...	183	183	183
" United States*	3,977	4,362	1,135
Total	6,800	9,241	6,352
	1914.	1914.	1913.
Total visible supply	Mar. 31, 16,989	Feb. 28, 17,308	Mar. 31, 11,132

* Exclusive of Pacific ports.
† Not reported.

TIN AND SILVER. (Monthly Averages.)

	New York					
	Tin			Silver		
	1912.	1913.	1914.	1912.	1913.	1914.
Jan.	43.24	50.45	37.74	56.22	62.93	57.56
Feb.	43.46	48.73	39.93	59.04	61.64	57.50½
Mar.	42.86	46.88	38.08	58.37	57.87	58.07
Apr.	44.02	49.12	.....	59.23	59.49	.....
May	46.12	49.14	.....	60.88	60.36	.....
June	47.77	44.93	.....	61.29	58.99	.....
July	44.75	40.39	.....	60.66	58.72	.....
Aug.	45.87	41.72	.....	61.61	59.29	.....
Sep.	49.18	42.47	.....	63.08	60.64	.....
Oct.	50.11	40.50	.....	63.47	60.79	.....
Nov.	49.90	39.81	....	62.79	58.99	.....
Dec.	49.90	37.64	.....	63.37	57.76	.....
Year	46.43	44.32	..	60.83	59.79	...

VISIBLE SUPPLIES.

Total visible supply of tin at the end of each month.

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	21,895	23,024	18,616	16,707	13,971	16,244
Feb.	20,746	21,288	17,260	14,996	12,304	17,308
Mar.	19,208	20,203	16,682	15,694	11,132	16,989
Apr.	18,825	17,932	14,441	11,893	9,822	.....
May	19,208	18,998	15,938	14,345	13,710	.....
Jun.	18,208	15,700	16,605	12,920	11,101	.....
July	20,244	17,433	16,707	13,346	12,063	.....
Aug.	19,182	17,943	16,619	11,285	11,261	.....
Sep.	21,419	18,999	16,672	13,245	12,943	.....
Oct.	18,724	18,183	14,161	10,735	11,857	.....
Nov.	20,025	18,875	16,630	12,348	14,470	.....
Dec.	20,918	17,194	16,514	10,977	13,893	.....
Av.	19,883	18,815	16,404	13,207	12,377	.....

SHIPMENTS FROM THE STRAITS.

Monthly shipments of tin from the Straits Settlements to Europe and the United States, as per Powell's returns:

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	5,733	5,895	4,290	4,018	6,050	5,290
Feb.	4,033	4,147	4,290	5,260	4,660	6,520
Mar.	3,380	2,877	4,510	5,150	4,810	4,120
Apr.	4,904	4,025	3,140	4,290	4,400	.....
May	5,184	4,965	4,310	5,760	6,160	.....
June	4,618	4,120	5,050	4,290	4,820	.....
July	5,644	5,040	4,660	4,580	4,770	.....
Aug.	4,702	5,700	4,680	5,210	6,030	.....
Sep.	5,081	4,220	5,150	5,430	5,160	.....
Oct.	3,801	4,480	4,350	4,450	5,020	.....
Nov.	5,510	4,840	5,070	5,600	5,560	.....
Dec.	5,835	4,270	5,970	4,980	5,110	.....
	58,425	54,579	55,470	59,018	62,550	
Av..	4,869	4,548	4,622	4,918	5,213	

CONSUMPTION IN THE UNITED STATES.

Monthly deliveries of tin in the United States exclusive of Pacific Coast.

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	3,200	3,500	3,200	3,700	3,700	3,600
Feb.	2,700	3,600	3,800	4,050	3,500	3,300
Mar.	3,900	4,000	5,100	4,000	5,900	4,450
Apr.	3,200	4,100	3,300	5,400	3,450	.....
May	3,900	3,600	3,400	4,250	3,350	.....
June	3,200	5,000	2,900	2,850	3,800	.....
July	3,600	3,800	4,300	5,150	3,900	.....
Aug.	3,300	3,700	3,800	4,300	3,600	.....
Sep.	3,200	3,300	4,200	3,600	3,100	.....
Oct.	4,100	3,350	3,500	3,850	3,700	.....
Nov.	4,000	3,800	3,100	4,300	2,800	.....
Dec.	3,200	3,600	3,700	4,050	3,100	.....
	41,500	45,350	44,300	49,500	43,900	
Av..	3,458	3,779	3,692	4,125	3,658	

SPELTER.

New purchases have been small during the month but deliveries were large on contracts for future deliveries made during the active buying of January and February. Prices at the close are within 1½c per pound of the lowest touched since 1911 and 3 below the high price reached in the movement of two months ago. On this movement the European bull syndicate is believed to have been largely liquidated on the American and the London buyers and since then their efforts appear to have been exerted to make a safe platform for another upward movement. It is believed this effort is still being continued but prices have shown some resistance to going lower. With any signs of good general trade with us, it is almost certain that foreign bull operations would develop. There is no prospect, however, of a repetition of the excessive prices of late 1911, 1912 and early 1913, for the visible during the next few months will be around 17,000 tons which would present a great obstacle to squeezing either the consumers or any short interest.

SPELTER IN MARCH.

The price of spelter declined from 5.32½ to 5.15 E. St. Louis between February 4th and March 4th and since then the market has practically stood at a standstill. In the past three weeks the fluctuation between the high and low price was only $1 a ton.

The resistance prices show to going lower in the face of an unsatisfactory consuming demand is worthy of notice.

There is every prospect that consumption will improve, especially in the brass trade which has for the first quarter of the year not run over 75 per cent of normal. Also galvanized iron like tin plates always shows up well in years when economies from poor times have to be employed, taking the place of more expensive materials.

There is every reason for believing that the large stocks of spelter shown in the Government report have not been depleted, and while this exists the prospects of any advance in prices are not favorable, but these stocks are in strong hands and with easy money conditions can easily be carried. We estimate the present production still only 75 per cent of normal.

At present prices there is little or no profit for even the best situated smelters or ore producers. The prospects would seem to be that while prices will continue to hold at around present figures, until some substantial improvement takes place in general business. There is little hope at present of the European market helping the situation here, as both the spelter and sheet zinc trade there continues depressd.

SPELTER AND LEAD PRICES IN MARCH.

	SPELTER			LEAD		
Day.	New York.	St. Louis.	London.	New York.	St. Louis.	London.
1.	....	....	.....	....	....	.....
2.	5.40	5.21¼	21 7 6	4.00	3.85	19 17 6
3.	5.37½	5.18¾	21 7 6	4.00	3.86¼	20 0 0
4.	5.37½	5.17½	21 7 6	4.00	3.86¼	19 17 6
5.	5.35	5.15	21 10 0	4.00	3.87½	19 17 6
6.	5.35	5.15	21 10 0	4.00	3.87½	20 0 0
7.	....	....	....	....	....	.....
8.	....	....	....	....	....	.....
9	5.35	5.15	21 10 0	4.00	3.87½	20 0 0
10.	5.35	5.17½	21 10 0	4.00	3.87½	20 0 0
11.	5.35	5.17½	21 10 0	4.00	3.87½	20 0 0
12.	5.35	5.15	21 10 0	4.00	3.87½	20 0 0
13.	5.35	5.15	21 12 6	4.00	3.87½	19 17 6
14.	....	....	.....	....	....	.....
15.	....	....	.....	....	....	.....
16.	5.35	5.15	21 10 0	4.00	3.87½	19 17 6
17.	5.35	5.15	21 10 0	4.00	3.87½	20 0 0
18.	5.35	5.15	21 10 0	4.00	3.85	19 17 6
19.	5.35	5.15	21 10 0	4.00	3.85	19 10 0
20.	5.35	5.12½	21 10 0	4.00	3.85	19 12 6
21.	....	....	.....	....	....	.....
22.	....	....	.....	....	....	.....
23.	5.32½	5.12½	21 10 0	4.00	3.85	19 15 0
24.	5.32½	5.12½	21 7 6	4.00	3.85	19 10 0
25.	5.32½	5.12½	21 7 6	4.00	3.85	19 17 6
26.	5.32½	5.12½	21 7 6	3.90	3.75	19 5 0
27.	5.32½	5.15	21 10 0	3.90	3.75	19 3 9
28.	....	....	.....	....	....	.....
29.	....	....	.....	....	....	.....
30.	5.35	5.15	21 7 6	3.80	3.65	18 17 6
31.	5.32½	5.12½	21 7 6	3.80	3.65	18 5 0
High	5.40	5.22½	21 12 6	4.00	3.87½	20 0 0
Low	5.30	5.12½	21 7 6	3.80	3.65	18 5 0
Av.	5.347	5.151	21 9 2	3.972	3.834	19 13 3

LEAD.

LEAD IN MARCH.

The lead market maintained a fairly firm aspect during the first three weeks of March, but at the end of the month the trust made two unexpected reductions in the price, thereby thoroughly unsettling the market. The first of these reductions occurred on March 25th and the second on March 30th, each for $2 a ton, which brings the price down to 3.80c New York, which is the lowest since the formation of the smelting trust over thirteen years ago, with the exception of the four months following the panic of October, 1907.

The following table shows the high, low and average prices in New York since 1900:

	High.	Low.	Average.
1900	4.75	3.75	4.41
1901	4.37½	4.00	4.36
1902	4.10	4.00	4.10
1903	4.65	4.10	4.26
1904	4.60	4.10	4.32
1905*	5.60	4.45	4.70
1906*	6.00	5.35	5.66
1907*	6.00	3.50†	5.35
1908†	4.60	3.65	4.23
1909	4.70	4.00	4.30
1910	4.70	4.40	4.49
1911	4.50	4.25	4.40
1912	5.10	4.00	4.48
1913	4.75	4.00	4.40
1914‡	4.15	3.80	3.97

* Premiums paid in outside market.
† Open market; Trust price withdrawn.
‡ To March 31st.

A report has been circulated that the price was reduced by the trust because they were being underbid by the independent sellers, but we are confident there is no truth to it. The independents for the most part were not even meeting the 4.00c price, let alone cutting it, and we know for a fact that they were greatly surprised by the trusts' action. We also know that several of the independents were offered preferential orders on the basis of the trust price just before the reduction of March 30th, and in each case they were declined. If they had found that the lead business was so very bad, as the trusts' minions are trying to make out, they would hardly have refused to accept orders on which the buyers were clearly giving them the preference.

The price of lead in former years has not been governed by the natural laws of supply and demand, and there is no reason to suppose to believe that it is doing so now, and even the stoutest adherents of the trust control would be unable to satisfactorily explain the price changes of the last four months which have been as follows:

1913.
December 2, reduced .....15c to 4.10
December 9, reduced .....10c to 4.00
December 24, advanced .....10c to 4.10
December 29, advanced ..... 5c to 4.15
1914.
January 9, reduced..... 5c to 4.10
February 2, advanced ..... 5c to 4.15
February 11, reduced .....15c to 4.00
March 25, reduced .....10c to 3.90
March 30, reduced .....10c to 3.80

The market has a steady appearance, but buyers should remember that in this metal surface conditions count for little.

REVIEW OF JOPLIN ORE MARKETS FOR MARCH.

Increased production, heavier deliveries, and lower prices characterized the month of March as contrasted with the preceding month. Better weather contributed to the higher outputting of all classes of mines and this was especially notable among the large aggregate of small producers who are especially susceptible to weather conditions. The spring opening came early and while accompanied with some rains these have not been heavy enough to seriously interfere with outputting. Better hauling conditions prevailed and were in a measure responsible for the heavier deliveries noted.

The weakness noted in zinc ores at the end of February continued over into March with a growing acuteness which reduced the base price offerings to a range of $36 as a minimum, to $40.50 as a maximum for blende ores the last week of the month. The highest base price noted during the month was $42. This reduced the average price for all blende ores to approximately $38 which is about $1 below the average cost of producing blende ores throughout the district. It is thus evident that some mines that have continued operation have done so at a loss and the district faces either a forced curtailment of output or still

LEAD

another radical cut in the wage scale which will permit of operation without further loss. With wages already cut from 10 to 25 per cent labor is bearing a very heavy burden and the dissatisfaction felt is a factor of growing concern throughout the field.

Calamine ores have held their own better than blende although there has been a loss in price, here, too.

Lead ores held firmly to a base range of $48 to $50 till the last week when there was a decline of one to two dollars per ton and same following the drop in pig lead.

WATERBURY AVERAGES.

The average price of Lake copper for the month of March owing to the peculiar conditions surrounding this grade is 15 cents; the average price of Electrolytic copper is 14 cents; the average price of Brass Mill Spelter is 5.59 cents.

	Copper			Spelter		
	1912.	1913.	1914.	1912.	1913	1914.
Jan.	14.50	17.00	14.75	6.78	7.56	5.54
Feb.	14.50	15.50	15.12½	6.85	6.81	5.70
Mar.	15.00	15.12½	15.00	7.17	6.56	5.59
Apr.	16.00	15.75	.....	7.07	6.08	....
May	16.37½	15.87½	.....	7.15	5.77	....
June	17.50	15.37½	.....	7.25	5.50	....
July	17.75	14.75	.....	7.46	5.61	....
Aug.	17.75	15.62½	.....	7.34	5.99	....
Sep.	17.87½	16.87½	.....	7.72	6.13	....
Oct.	17.75	16.87½	....	7.83	5.74	....
Nov.	17.75	16.25	.....	7.74	5.66	....
Dec.	17.75	15.00	....	7.65	5.44	....
Year	16.71	15.83	.....	7.33	6.06½	....

COPPER EXPORTS.

The following table shows the exports of copper for the past four years, in tons:

	1914.	1913.	1912.	1911.
Jan.	35,566	25,026	31,229	29,357
Feb.	31,384	26,792	31,894	19,492
Mar.	45,973	42,428	27,074	23,600
April	33,274	22,591	27,466	
May	38,601	32,984	27,670	
June	27,815	26,669	30,489	
July	29,596	26,761	36,659	
Aug.	24,722	29,526	29,018	
Sept.	34,356	25,572	26,170	
Oct.	29,239	25,020	22,555	
Nov.	29,758	19,171	26,600	
Dec.	30,503	29,474	37,725	
Total	382,110	327,965	336,801	

SPELTER (Monthly Averages.)

	New York			St. Louis—		
	1912.	1913.	1914.	1912.	1913.	1914.
Jan.	6.55	7.23	5.33	6.39½	7.04	5.14
Feb.	6.70	6.49	5.46	6.53	6.25	5.27
Mar.	6.93	6.29	5.35	6.74	6.08	5.15
Apr.	6.87	5.79	....	6.66	5.59	....
May	6.89	5.51	....	6.71	5.31	....
June	7.05	5.23½	....	6.85½	5.05	....
July	7.23	5.41	....	7.04	5.23	....
Aug.	7.13	5.80	....	6.94	5.64	....
Sep.	7.55	5.83	....	7.37	5.65	....
Oct.	7.61	5.47	....	7.39	5.27	....
Nov.	7.50	5.34	....	7.32	5.15	....
Dec.	7.36	5.22	....	7.19	5.03	....
Year	7.11	5.80	....	6.93	5.61	....

LEAD (Monthly Averages.)

	—New York*—			—St. Louis—		
	1912.	1913.	1914.	1912	1913.	1914.
Jan.	4.44	4.35	4.11	4.34	4.20	3.99½
Feb.	4.04	4.35	4.06	3.99	4.20	3.95
Mar.	4.07	4.35	3.97	4.06	4.21	3.83
Apr.	4.20	4.40	....	4.14	4.25½	....
May	4.20	4.36	....	4.09	4.22	....
June	4.39½	4.35	....	4.31	4.21	....
July	4.73	4.37	....	4.60	4.25	....
Aug.	4.56½	4.63	....	4.46	4.56	....
Sep.	5.05	4.75	....	4.94	4.62	....
Oct.	5.10	4.45	....	4.91	4.31	....
Nov.	4.69	4.34	....	4.50	4.18	....
Dec.	4.36	4.06	....	4.19	3.94	....
Year	4.48½	4.40	....	4.38	4.26	....

* Trust price.

COMPOSITE METAL PRICES.

Monthly averages.

	1910.	1911.	1912.	1913.	1914.
Jan.	**9.084**	8.908	9.778	10.987	9.105
Feb.	8.881	8.915	9.677	10.260	9.294
Mar.	8.778	8.797	9.886	10.024	9.026
April	8.568	8.795	10.277	10.198	.....
May	8.413	8.795	10.468	10.163	....
June	8.362	9.154	11.014	9.648	....
July	**8.338**	9.100	11.043	9.398	....
Aug.	8.479	9.188	11.092	10.925	....
Sep.	8.569	8.928	11.575	10.350	
Oct.	8.747	8.990	11.596	10.029	
Nov.	8.888	9.306	11.372	9.590	
Dec.	8.881	9.675	11.219	9.053	
Year	8.665	9.046	10.750	9.977	

ALUMINUM—ANTIMONY

ALUMINUM IN MARCH.

The market has been completely stagnant. Demand has been very light, the automobile trade showing little improvement, and the steel mills have seemed well supplied on old contracts. Sellers of foreign aluminum have offered for sale at 18 to 18½ duty paid, but it has not been a question of price, it is a case of consumers being either supplied or not inclined to make future contracts.

While present prices are cheap as compared with former years it is hard to see any encouraging features to the market, as there is danger of the European market being now deprived of American orders, weakening in their price. At the present rate of consumption we believe the American producing interest is quite capable of taking care of the country's requirements, and that they are seeing that nothing escapes them. The statistics show a marked increase last year in the American production of bauxite or aluminum ore, namely 210,241 long tons are 31.5 per cent increase over 1912.

ANTIMONY IN MARCH.

The market has been very dull and stagnant, and it is a puzzle to the trade how the metal continues to be produced at what must surely be a substantial loss. It is evident that the new Chinese production that has come into sight was not wanted but that it may take time to prove this as is now being done by the producers' balance sheets. We understand an effort is being made to form a "comptoir" abroad to limit production and curtail competition. But some important interests prefer to "paddle their own canoe" distressing as the operation is, and remembering that when the same thing was tried some years ago when the final end of the market was worse than before.

Antimony like tin has no substitute, but neither does a low price increase the quantity consumed, as it is only used in small quantities as an alloy with other metals given a heavy overproduction there is no relief for low prices until production is adjusted to consumption.

ALUMINUM, ANTIMONY AND SILVER IN MARCH.

		Antimony			Silver	
	Aluminum.	Cookson.	Halletts.	Hungarian.	New York.	London.
Day.	Cts.	Cts.	Cts.	Cts.	Cts.	d.
1.	.....	....	....	....	....	....
2.	18.62½	7.25	7.00	5.95	57¾	26⅛
3.	18.62½	7.25	7.00	5.95	57¾	26⅛
4.	18.62½	7.25	6.95	5.95	58¼	26⅞
5.	18.62½	7.25	6.95	5.95	58½	27
6.	18.62½	7.25	6.95	5.95	58¼	26⅞
7.	.....	....	....	....	58¼	26⅞
8.	.....	....	....	....	....	....
9.	18.62½	7.22½	6.95	5.95	58⅛	26⅛
10.	18.50	7.22½	6.95	5.95	58⅛	26⅛
11.	18.25	7.22½	6.95	5.95	58⅛	26⅛
12.	18.25	7.22½	6.95	5.95	57⅞	26⅛
13.	18.25	7.22½	6.95	5.95	58	26¾
14.	.....	....	....	....	58⅛	26⅛
15.	.....	....	....	....	....	....
16.	18.25	7.22½	6.95	5.95	58⅛	26⅛
17.	18.12½	7.22½	6.95	5.95	58⅛	26⅛
18.	18.12½	7.22½	6.95	5.95	58	26¾
19.	18.12½	7.22½	6.95	5.95	58	26¾
20.	18.12½	7.22½	6.95	5.95	58	26¾
21.	....	....	....	....	58⅛	26⅛
22.	....	....	....	....	....	....
23.	18.12½	7.22½	6.95	5.95	58⅛	26⅛
24.	18.12½	7.22½	6.95	5.95	58⅛	26⅛
25.	18.12½	7.22½	6.95	5.95	58	26¾
26.	18.12½	7.22½	6.95	5.95	58	26¾
27.	18.12½	7.22½	6.95	5.95	58	26¾
28.	....	....	....	....	58	26¾
29.	....	....	....	....	....	....
30.	18.12½	7.22½	6.95	5.90	58	26¾
31.	18.12½	7.22½	6.95	5.90	58	26¾
High	18.75	7.25	7.00	6.00	58½	27
Low.	18.00	7.20	6.90	5.85	57¾	26
Av'ge	18.301	7.23	6.954	5.945	58.07	26.79

TRADE NOTES.

The Standard Electric Company, Racine, Wis., manufacturing electrical appliances, has purchased the plant of the McCrum-Howell Company. It will occupy the entire McCrum-Howell building and will continue the lease of the foundry building now held by the Racine Aluminum & Brass Company. George C. Schmitz is general manager.

The plant of the Sandusky Auto Parts & Motor Truck Company, Sandusky, O., has been sold under order of the United States Court in bankruptcy proceedings to James J. Dauch, president of the Hinde & Dauch Company, Sandusky, for $78,000. It is stated that Mr. Dauch expects to use the plant to manufacture tractors and other equipment.

The Augustive Rotary Valve Motor Company, Marshfield, Wis., is preparing to engage in manufacture of internal combustion engines.

The Murphy Power Company, Detroit, operating a general power business, has under consideration the erection of a large power plant. It will be built on a larger scale than the present one and will be equipped to provide for the company's rapidly increasing business.

The J. Massino Mfg. Company, 651 Third street, Milwaukee, manufacturer of gas and electric fixtures and metal art novelties, will build a $22,000 factory at 740-742 Third street. George C. Ehlers is the architect.

The Wayne Machinery Company, Ft. Wayne, Ind., has been incorporated with $25,000 capital stock, to manufacture machinery. The incorporators are George H. VanArman, N. Rothschild and W. E. Friedell.

The Tennessee Copper Company, No. 11 Broadway, New York City, is planning to install electrically operated equipment at the surface plants of two of its mines near Ducktown, Tenn., install new engines and air compressors, erect a green ore furnace, enlarge the sulphuric acid plant, and make numerous other changes.

The Connersville Fireproof Safe Company, Connersville, Ind., has been incorporated with $30,000 capital stock, to manufacture safes. The directors are E. W. Ansted, F. I. Barrows and O. M. Hemplemen.

The Parsons Mfg. Company, Detroit, has been incorporated with $15,000 capital stock to manufacture general hardware. Carl B. Parsons, Charles T. Knisely and John McN. Burns are the incorporators.

The Lorain Brass & Bronze Foundry Co. Lorain, O., has been incorporated with a capital stock $2,000; manufacture brass and bronze castings. The incorporators are E. M. Cable, William H. Harding, Joe Finegold and A. H. Gabriel.

The Kingston Iron & Tube Company, Ltd., Kingston, Ont., has been incorporated with a capital stock of $1,000,000 by James E. Day, John M. Ferguson, Edwin F. McDonald, and others, of Toronto, to manufacture iron, steel, etc.

The Hodgson Foundry Company, at 2012-18 West 13th street, Chicago, recently moved into its new building, and has added considerable new equipment to its plant. The foundry formerly occupied will be operated for copper and bronze castings, for blast furnace work, and will be in charge of J. M. Palmer, who was for a number of years with the Best Mfg. Company, of Pittsburgh.

The West Coast Wire Company, Seattle, Wash., has changed its name to the Kent Wire Company.

The Duluth Mfg. Company, Duluth, Minn. has been incorporated by W. L. Jackson and others, to manufacture and sell a patented bolt and pipe threading machine. It will build factory in Duluth in the near future.

The American Valve & Tank Company, Indianapolis, has been incorporated with $100,000 capital stock, to manufacture valves, tanks and similar appliances. The directors are Frank Shellhouse, William M. Freeze, Charles A. Wulp, William J. Henley and John L. Baker.

TRADE NOTES.

At a meeting of the directors of the American Stamping & Enameling Company, Bellaire, O., it was decided to erect a factory in Massillon, O. The directors authorized the immediate construction of the first unit, which will contain complete stamping and enameling equipment. The stamping machinery in the Bellaire plant will be moved to Massillon. The enameling equipment will be new and will consist of 16 muffle furnaces of the largest size now in use.

The Waterloo Brass Foundry, Waterloo, Ia., has been incorporated; brass, copper and aluminum castings; $10,000; by B. Schultz, Harry E. Cohn, Henry L. Wheelock, Jacob Cohn.

The Worcester Pressed Steel Company, Worcester, Mass., advises it is erecting two buildings; one is a cold rolling mill, 90x150, all steel frame, steel sash, except roof and floor. Berlin Construction Co., Springfield, has the building contract. Equipment is ordered for cold rolling, flattening.

Masson, Ltd., Quebec, Que., has been incorporated with a capital stock of $50,000 by Damase Masson, J. B. H. Lamere and others, of Montreal, to manufacture steel, ornamental iron, etc.

American Metal Molding Co., Newark, N. J., has been incorporated; metal conduits for electric wires; $50,000; by Charles A. Reibovitz, Clarence Hanson, Gustave A. Johnson.

The Dreadnot Motor Trucks of Montreal, Ltd., Montreal, has been incorporated with a capital stock of $100,000 by Edward S. Ross, Eugene R. Angers, and others, to manufacture automobiles, motor cycles, engines, etc.

The Beaton & Caldwell Mfg. Company, New Britain, Conn., is moving to New Britain the business of the McGee Supply Company, Brooklyn, N. Y., manufacturer of automatic valves of various types. The Beaton & Caldwell Company plans to increase its factory by a four-story addition to be erected on land recently acquired adjacent to its property.

The Eagle Smelting & Refining Works announces its offices will be located in the Woolworth building, 223 Broadway, N. Y. City, after April 1.

The Federal Brass Mfg. Company, Cleveland, has been incorporated with a capital stock of $25,000 by R. H. Hunger, M. A. Niepert, W. H. Nye, and others, to manufacture brass goods.

The Modern Caster Company, Cleveland, has been incorporated with a capital stock of $5,000 by W. J. Ogkington, M. J. Geiss, and others, to manufacture metal specialties.

A Syndicate of Chicagoans, and others, represented in East St. Louis, Ill. by Thos. Godfrey, is planning the establishment in East St. Louis of a plant, to cost about $750,000, for the manufacture of bridge and other structural steel.

The New Castle Steel & Iron Company of Newcastle, Pa., has increased its capital stock from $100,000 to $500,000 in order to install complete modern machinery for electric welding. The company has taken over the building and machinery of the New Castle Forge & Bolt Company.

The Eagle & Globe Steel Company, Ltd., has been granted a charter in Ontario to manufacture steel, iron, tools, machines, etc. It has a capital stock of $40,000. Robert V. Clarbrough, Toronto, has been appointed attorney.

The Aluminum Steel Company, Pittsburgh, $5,000, has been incorporated to make seals for cars. Incorporators, Ralph Longenecker, Alexander Black, Miles H. England, John G. Buchanan and James I. Marsh, Pittsburgh.

B. Hoersgeng & Company, New York City, has been incorporated; iron and steel articles; $10,000; by G. S. Zahn, G. A. Dugen, Bernard Hoersgeng, 237 West 107th street.

The Bacher Iron & Steel Company, formerly of Canton, O., has located at Akron, in the same state.

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BUSINESS CONDITIONS AND PROSPECTS.

The disappointing, unsatisfactory and stagnant business conditions of March were continued during April, the early part of the month being particularly depressed by the very serious Mexican situation. Unlike other like occasions the preparations for war, and sending of our forces to uphold the dignity of our flag and stop what had become an intolerable situation, failed to create much national enthusiasm, for the reason that there was little in the prospect to excite such enthusiasm and also because it was believed that actual war would be avoided in some way.

A Rift in the Clouds.

A rift in the clouds has taken place in the past few days. The efforts to mediate made by our South American sister republics give every promise of being successful in preventing what would be a long and serious guerilla war, during the prosecution and settlement of which, there would always be present the risk of our view of what we consider in accordance with our interests and national dignity, conflicting with those of other nations and causing complications. As a result of the better Mexican outlook and other fundamental reasons there is noticeable a change for the better in business and sentiment, which Wall Street, as usual, has been quick to record, and the continued improvement in prices there reminds us of what a true barometer it has often been in the past of coming changes.

In Case of War.

It should be remembered that in case of war, we are in a different situation from almost any other nation. The money, grain, meat, arms, ammunition and the hundreds of other supplies necessary to

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carry on a campaign can and would be supplied by the people of the United States and its factories. The enormous expenditures by the Government would remain in the country, and create great industrial activity with our manufacturers. In this respect our position is unique, and entirely different from those of the European nations. War with them means to a great extent good business for their neighbors, bad business for themselves. We think in the depression the foreign market and bourses have shown at the prospect of our war, they have gauged the effect an America by what the effect would be in their case, and have overlooked the above facts.

It will be remembered in the case of our war with Spain, the effect was to start great activity in American business which after once started, continued for nearly four years. It is a heavy price to pay to rouse this country out of its present lethargy, but we believe if war must come it will create great business activity.

The Business Situation a Promising One.

The favorable features in the general situation now outweigh the unfavorable, and we give our usual comparison elsewhere.

The improvement in orders, even from the railroads, demonstates that after five months of holding up of orders, and only buying for the most urgent necessities, a point has been reached where a change had to come. It is impossible to believe that after running for six months at a rate of around 60% of what was required in the past two years, that such a rate of consumption of manufactured goods could be continued, and in consequence a like curtailment in the operations of our factories.

Effect of The Railroad Rate Decision.

A decision in the railroad rate matter is now certain to be given very shortly. The hearings are closed and the Commission are deciding on what advance shall be granted. The railroads have proved their case to all fair and reasonable men and some advance is certain. What will be the effect on business? Perhaps not as stimulating as if it had come two months ago, because we have lost some of the best weeks of the year for business activity. Since then the delay has killed the spring trade, and there will be with many a tendency to await until the promised large crop is a certainty. In other words, to wait until the fall months before acting with freedom and enthusiasm, as the summer is not propitious for business activity.

We would take this view were it not for the depleted state of stocks and the orders that have been accumulating on purchasing agents desks and which will be in a great measure released when the rate decision is given. It will require very little to start things, and when once started it will take a good deal to put us back again into the depression of the past few months.

Outlook is Good.

Nature and the industry of the agricultural interests have been busy correcting the adverse operations of our legislators, and social science theorists, and promise to give us the greatest crop on record.

The money situation is sound and easy.

The appointments for the Federal Reserve Board have met the approval of the banking and business interests.

Congress is expected to adjourn July 1st, unless Mexican affairs prevent.

Hard times have accomplished what argument and common sense failed to do, namely to bring home to our legislators, that business is too sensitive a thing to be dealt with in a hammer and tongs manner.

It is a science with rules and conditions of its own and to be legislated on properly requires scientific treatment from those who are acquainted with those conditions. It has taken a bitter experience to prove this, but we believe the future will show that we have learned the lesson.

The outlook is good, and we believe before the year is closed our factories will be exerted to their utmost to make up for the curtailed operations of the past six months.

THE RAILWAY RATE CASE.

It speaks equally well for the ability of the Interstate Commerce Commission and for the good temper of the American people that the battle for and against higher freight rates should be waged with such vigor throughout the country, in the public prints, in banquet halls, on the lecture platform, everywhere that men meet together, without there being injected any

EDITORIAL.

serious note of criticism of the Interstate Commerce Commission.

We said "battle" and truly it is a battle if the earnestness of the parties means anything. But why in public? Why not merely before the Commission? Does one see in the public prints, does he hear in private discussion, much opposition to an advance in rates? There is some, but certainly not much. If the case were to be judged on the basis of what is said away from Washington, the railroads would easily win their contention.

Yet up to this moment there remain very serious doubts whether the Commission will grant any general increases in rates, and still there are no very serious charges that the men of the Commission are obtuse, unreasonable or prejudiced. We do not think railroad men are lacking in courtesy or in policy, yet we do not think it is because of courtesy or policy that railroad men refrain from criticising the Commission. We are strongly inclined to believe that the explanation of this curious position, railroad men and their friends all over the country engaged day by day for months in vigorously and enthusiastically knocking down men of straw, is that the Commission knows more than the public realizes of reasons why rates may already be reasonably high, and that the Commission knows further that a large part of the public is opposed to rate advances, even though it does not loudly express its views.

One cannot but grant, of course, that the people are the final judge of what is reasonable in a railway rate. There are no legal definitions that can carry weight in the long run. The closest the courts have come has been to declare a given rate confiscatory in the case of one competing road and not confiscatory in the case of another, even though it is fundamental that the two roads must charge the same rate. And to define confiscation is much harder than to define reasonableness. The railroads are owned by men. One man paid for Pennsylvania stock $186 in 1912, while another paid $106 for the stock in 1913. A decreed rate may deprive the first stockholder of $80 of his investment, but leave the other's investment of $106 intact: the rate would be confiscatory in the case of one stockholder and perfectly proper in the case of another!

So we are bound to conclude, in the premises, that the real contest of the railroads is with the people, whose conclusion they have reason to hope will be enacted into proper form by the Interstate Commerce Commission. It is for the people to determine what is reasonable treatment for the railroads.

The Commission is, we think, under greater obligation to give weight to public opinion than is generally recognized. While its powers are broad, they have their limitations. The act of June 18, 1910, prescribed that "at any hearing involving a rate increase after January 1, 1910, or of a rate sought to be increased after the passage of this act the burden to show that the increased rate or proposed increased rate is just and reasonable shall be upon the common carrier", and the commission has always insisted upon drawing a vital distinction between need of additional revenue and the reasonableness of any proposed rate advance. In one of its broadest aspects, this distinction is employed to question whether an increase in operating cost, relative to gross income, is to be laid upon the passenger or upon the freight department. Upon this aspect of the matter the railroads are conspicuously silent. There are some very good grounds for suspicion that much of the trouble arises from low passenger rates in proportion to the expensive nature of the service rendered, through the running of trains which are very poorly patronized through all or a large part of their run. On account of various state laws the railroads are prevented from advancing passenger rates, even though they were able to secure the full consnt of the Federal Commission.

To an extent, though only to an extent which the Commission defines from time to time, the act of 1910 is interpreted in accordance with English practice, for in England real regulation is a matter of nearly two decades greater age than in the United States. While there had for a long time been prescribed maximum rates, in 1892 the English Parliament revised rates, in many cases reducing the maximum rates, whereupon the railroads advanced all their rates

THE RAILWAY RATE CASE.

(Continued from previous page.)

. . the prescribed maxima. This resulting in a storm of protest, an act was passed in 1894, which prescribed that in the case of those advances, as well as any that should subsequently be undertaken, it would be necessary for the railroad to prove that there had been an actual increase in the cost of handling the particular commodity affected. Our Commission seems disposed to take a similar stand, but on account of the wording of our law it must go farther, and require the railroad to justify the reasonableness of the proposed advanced rate. In other words, the English act justified, in great measure, the rates which chanced to be in existence upon a certain date, whereas our Act of Congress justifies nothing; it requires everything to be proved. Thus the Interstate Commerce Commission has a very difficult problem before it.

PIG IRON PRODUCTION.

According to the Iron Age, pig iron production in April was 2,269,935 tons against 2,347,867 tons in March, the daily rate figuring out 75,665 tons and 75,738 tons, respectively. The expected curtailment did not come in April, but the blowing out of furnaces came thick toward the close of the month. Thus the figures of active capacity of May 1st are the real index to what is going on. With a net loss of eighteen furnaces in April (211 being in blast May 1st, against 229), the capacity active at the beginning of this month was 71,095 tons a day, over 5,000 tons less than on April 1st, when it was 76,111 tons.

Daily rate of production of coke and anthracite pig iron, gross tons:

	1910	1911.	1912.	1913.	1914.
Jan. .	84,148	56,752	66,384	90,172	60,808
Feb.	85,619	64,000	72,412	92,569	67,457
Mar.	84,439	70,056	77,591	89,147	75,738
April	82,702	68,836	79,181	91,559	75,665
May..	77,102	61,079	81,051	91,039	..
June .	75,516	59,585	81,358	87,619	.
July..	69,305	57,841	77,738	82,601	.
Aug. .	67,963	62,150	81,046	82,057	.....
Sep...	68,476	65,903	82,128	83,531	
Oct ..	67,520	67,841	86,722	82,133	
Nov..	63,659	66,648	87,697	74,453	
Dec...	57,349	65,912	89,766	63,987	.. .

COMMERCIAL FAILURES.

Fewer failures in New England and the Middle States, but a larger number in the West and South and a net increase of seventy-nine failures, or 6.9 per cent over April a year ago, is the substance of "Bradstreet's" report of failures for the month just ended. The number of failures for April was the largest ever reported in April, although the number was 2.5 per cent less than in March and the liabilities for April were 31 per cent smaller than in March and 12 per cent smaller than in April a year ago.

In the following table will be found the failures monthly and quarterly for the first four months of the past two years:

1914.	No. of failures.	Assets.	Liabilities.
January	1,729	$20,421,273	$35,196,682
February	1,206	10,820,258	20,159,736
March	1,260	13,530,577	26,159,420
First quarter	4,195	44,772,108	81,515,838
April	1,227	8,753,891	17,889,354
1913.			
January	1,566	8,404,342	15,619,192
February	1,114	16,159,858	29,802,170
March	1,235	8,308,715	19,411,481
First quarter	3,915	32,872,915	64,832,843
April	1,148	12,473,968	20,404,323

BANK CLEARINGS.

Following are the aggregate of clearings monthly at all cities in the United States, compared with the like periods in four preceding years as reported by Bradstreets:

(Six figures omitted)

	1914.	1913.	1912.	1911.	1909.
Jan.	$16,053	$16,092	$14,977	$14,341	$13,905
Feb.	12,736	13,483	12,788	12,136	11,121
Mar.	14,111	13,988	14,330	13,323	12,473
1st q'r	42,900	43,563	42,095	39,810	37,499
April		14,162	14,855	12,254	13,531
May		13,972	14,708	13,367	12,868
June		13,581	13,519	13,691	14,007
2d q'r		41,715	43,082	39,312	40,406
July		13,423	13,847	12,925	13,322
Aug.		12,260	13,097	12,495	13,390
Sep.		13,290	12,956	12,410	13,405
3d q'r		38,970	39,900	37,830	40,117
Oct.		15,553	17,002	13,335	15,710
Nov.		13,741	15,228	13,891	14,620
Dec.		14,536	15,217	14,027	15 721
4th q'r		43,832	47,447	41,253	46,032
Total		168,083	172,524	158,195	164,054

DIGEST OF BUSINESS CONDITIONS.

FAVORABLE.

1.—**Ideal Crop Outlook,** prospect of largest wheat crop on record. No less an authority than Patten predicts that there will be 300,000,000 bushels available for export. Every promise that weather and soil conditions indicate largest general crop on record.

2.—**Mexican developments** and negotiations indicate that war will be avoided and a settlement reached in the internal affairs of that country satisfactory to the U. S. Government, and favorable for the important American investments and business interests in Mexico.

3.—**A good and satisfactory money situation,** money rates at present as low as at anytime this year in spite of exports of $1,000,000 gold this week and better demand for funds from Wall Street on account of growing activity and higher prices there.

4.—**Confidence inspired** by the appointment of Richard Olney as Governor of Federal Reserve Board, **a guarantee of banking efficiency,** while the appointment of Paul Warburg as a member of the board assures an expert thoroughly experienced in the theory and practice of banking.

5.—**Congress to adjourn July 10th,** unless prevented by Mexican affairs.

6.—**Failure records Improved.**

7.—**Unemployment not increasing.** Help advertisements in 28 cities during week beginning May 1st show substantial decrease.

8.—**Wall Street advances,** a barometer of coming improvement and returning confidence.

9.—**Railroad rate hearings closed.** Decision now expected within next three weeks, and every indication that the railroads having proved their case, will be granted most of the advance they have asked.

10.—Reason for believing that **"hard times"** have begun to accomplish what argument and common sense failed to do, namely to make our legislators realize that in their continued activity in regulating and shackling business, they are destroying confidence and enterprise of the business interest, creating unemployment and endangering their success in the fall elections.

11.—**Better buying by railroads and consumers generally,** a point having been reached where recent abstinence could not be continued.

UNFAVORABLE.

1.—**Possibility that efforts to prevent war in Mexico may fail,** and in which case the United States may have to face a long guerilla war in that country, with the possibility always present of trouble cropping up with other nations who may require treatment of the situation in a manner not satisfactory to the dignity and interests of the United States.

2.—**The Anti-Trust bills still pending** in Congress.

3.—**Stagnation in general trade,** and depression on the realization that business has lost some of the best months in the year for activity and starting of new enterprises. The feeling that the general attitude will be to await the certainty of a large crop, in other words to await the fall months, before resuming to normal business enthusiasm and activity.

4.—**Unemployment** decreasing the purchasing power of labor.

5.—**The losses to business** that has followed six months of reduced operations and the decline in investments and prices of almost everything except food and raiment. Actual "cost of living" not reduced, while means of pay for same considerably curtailed.

6.—Lack of confidence in our legislators in their role of regulators of business, and discouragement over affairs generally which mental attitude it may take some time to change.

BUSINESS TRENDS.

OUR FOREIGN TRADE.

Washington.—Both imports and domestic exports increased during March over March of last year, according to preliminary figures announced by the Bureau of Foreign and Domestic Commerce, Department of Commerce. March imports aggregated $181,930,039, against $155,445,498 in March last year; free merchandise representing $11,053,480, or 61 per cent of the month's total, against $84,216,033, or 54 per cent in March a year ago. Domestic exports in March totaled $183,921,571, registering a slight gain over the $183,446,790 of March last year; but the decrease in the exports of foreign merchandise reduced the total exports to $187,314,170 in March, 1914, as compared with $187,426,711 in March of last year.

For the nine months ended March of the current year the imports totaled $1,397,727,313, against $1,401,844,183 last year; and domestic exports totaled $1,859,107,589, against $1,881,043,972 last year. Foreign goods exported aggregated $23,935,376 in the nine months compared with $27,014,401 last year. The excess of exports over imports in March was $5,384,131, and in the nine months ended March, $485,315,652. Gold imports during the month totaled $7,843,769, compared with $4,380,993 in March, 1913; while gold exports were but $2,632,049 against $18,076,584 in March last year.

COMMODITY PRICES.

The latest index number compiled by "Bradstreet's" works out at $8.7562 as of April 1st. This displays a drop of eight-tenths of one per cent, which closely approaches the percentage of loss reflected by the two leading English authorities, one of which portrays a decrease of nine-tenths of one per cent, while the other notes a loss of one per cent. It is to be observed that it shows the lowest index number registered for any month since August of 1911, and comparison with April 1, 1913, reveals a decline of 5.8 per cent, while contrast with that date in 1912 furnishes a slump of 3.7 per cent. On the other hand, the present level is 2.6 per cent above that of April 1, 1911, but it is 4.8 per cent below the like time in 1910. The current index is 5.2 per cent higher than that of April 1, 1909 and 8.5 per cent above that of April 1, 1908, when the post-panic effects of October, 1907 were strongly in evidence. As compared with April 1, 1907, there is a decrease of 2.3 per cent.

The following table gives "Bradstreets" index numbers (the totals of the prices per pound of ninety-six articles) since January 1, 1909:

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	8.263	9.231	8.836	8.949	9.493	8.885
Feb.	8.302	9.073	8.766	8.958	9.459	8.861
Mar.	8.217	9.111	8.603	8.902	9.405	8.832
Apr.	8.316	9.200	8.522	9.098	9.297	8.756
May	8.302	9.039	8.458	9.270	9.139	
June	8.396	8.911	8.529	9 102	9.072	
July	8.457	8.925	8.594	9.112	8.952	
Aug.	8.504	8.822	8.657	9.159	9.011	
Sep.	8.591	8.952	8.819	9.215	9.100	
Oct.	8.748	8.927	8.806	9.451	9.152	
Nov.	8.964	8.877	8.892	9.478	9.225	
Dec.	9.126	8.784	8.982	9.546	9.229	
Year	8.515	8.989	8.713	9.186	9.211	

IDLE RAILWAY CARS.

The fortnightly bulletin of the American Railway Association shows that on April 15th there was a net surplus of freight cars on the lines of the United States and Canada of 212,869 this representing an increase of 73,357 cars during the first half of April.

The fortnightly figures are given below, with the returns for other periods figures representing net surplus of idle cars, except where otherwise indicated:

1914—		1913—	
Apr. 15	212,869	Sep. 1	58,306
Apr. 1	139,518	Aug. 15	54,425
Mar. 15	124,865	Aug. 1	58,445
Mar. 1	153,907	July 15	69,405
Feb. 15	197,052	June 30	63,704
Feb. 1	209,678	June 14	63,927
Jan. 15	214,889	May 31	50,908
Jan. 1	188,850	May 15	50,294
		May 1	39,799
1913—		April 15	57,498
Dec. 15	†101,545	April 1	57,988
Dec. 1	57,234	Mar. 15	37,775
Nov. 15	22,652	Mar. 1	31,381
Nov. 1	*1,842	Feb. 15	22,183
Oct. 15	*6,048	Feb. 1	37,260
Oct. 1	10,374	Jan. 15	28,439
Sep. 15	40,150	Jan. 1	17,053

* Net shortage; † Maximum surplus for year; ‡ Minimum surplus for year.

BUSINESS TRENDS.

NEW INCORPORATIONS.

From the returns specially compiled by the Journal of Commerce and Commercial Bulletin it appears that the output of charters for $1,000,000 or over in the Eastern States, including the filing of increases of capital last month involved $136,185,000. This is the best monthly showing for some time. For example, it compares with $57,700,000 in March. In April a year ago, however, the total was $198,718,200. Other companies incorporated during the past month with a capital of $100,000 or over, including all other States than those of the East, bring the grand total up to $186,752,000, against $131,737,000 in March. In April, 1913, the incorporations totaled $255,223,000.

The following is a summary of total incorporations in the Eastern States covering concerns with an individual capitalization of $1,000,000 or more by months:

	1914.	1913.	1912.
Jan. ..	$120,050,000	$332,450,000	$210,520,000
Feb. ..	51,575,000	191,500,000	166,300,000
Mar. ..	57,700,000	166,030,000	159,578,000
April.	136,185,000	198,718,000	281,457,000
Total	$365,510,000	$888,698,000	$817,855,000
May		172,200,000	140,284,000
June		79,550,000	280,170,000
July		83,650,000	253,518,000
Aug.		63,500,000	164,500,000
Sept.		42,750,000	115,050,000
Oct.		70,856,300	169,495,000
Nov.		77,800,000	154,200,000
Dec.		55,250,000	200,100,000
Total		$1,534,254,300	$2,295,172,000

THE STOCK MARKET.

Transactions in stocks on the New York Stock Exchange during April amounted to 7,680,037 shares. This was larger, with the exception of January, than any month since last October and compares with 5,784,651 shares in March and 8,496,162 shares in April, 1913.

Total stock sales on the 14th were the largest of any day since January 30th, when 532,540 shares changed hands. On five days during the month stock sales exceeded 400,000 shares, whereas during the month previous there was only one such day. On the 4th only 106,103 shares were sold.

Bond dealings were below the previous month, but in excess of the corresponding month in 1913, the total being 60,755,000. The largest day's transactions was $3,396,000 on the 22nd, and the smallest was $1,456,000 on the 30th.

BUILDING OPERATIONS.

Building operations for March as reported by "Bradstreet's" are very good, the best in fact, for over a year past or since March, 1913, which month it surpasses by a fair percentage. The showing for March is especially good when compared with that for February, and this particular increase is the largest reported for many years past.

Expenditures at 136 cities for March aggregate $82,597,324, as against only $50,250,962 in February and $78,375,907 in March a year ago. There is here shown a gain of 64.3 per cent over February and of 5.3 per cent over March last year, with seventy-six out of the 136 cities showing increases over the corresponding month last year, and sixty showing decreases.

The record of building expenditures at leading American cities, according to Bradstreets, reporting monthly, quarterly and yearly from April, 1912, down to and including March, 1914, shows the ebb and flow in the building industry in the past 27 months, as follows:

	Cities.	1913.	1912.		
Apr.	145	96,918,246	103,189,722	D.	6.0
May	146	88,706,252	95,008,769	D.	6.6
June	146	80,859,953	96,958,920	D.	16.6
2d quarter		266,484,451	295,157,411	D.	9.7
Six months		463,186,846	474,753,575	D.	2.4
July	145	75,501,375	87,580,278	D.	13.7
Aug.	146	63,720,880	83,462,183	D.	23.6
Sep.	143	76,720,050	68,680,476	I.	11.7
3rd quarter		215,942,305	239,722,967	D.	10.0
9 months.		679,129,151	714,476,512	D.	5.0
Oct.	144	63,035,385	73,128,886	D.	13.8
Nov.	145	50,405,703	71,176,911	D.	29.1
Dec.	146	67,409,818	72,180,455	D.	6.6
4th quarter		180,847,906	216,486,252	D.	16.4
Year		859,977,057	930,962,764	D.	7.6

		1914.	1913.		
Jan.	146	45,999,862	55,514,979	D.	17.1
Feb.	148	51,376,112	62,784,999	D.	18.1
Mar.	136	82,597,324	78,375,907	I.	8.4
1st quarter		179,973,298	196,675,885	D.	8.4

SECURITY FLOTATION AND INDUSTRIAL ACTIVITY.

By James H. Brookmire, President of
THE BROOKMIRE ECONOMIC SERVICE.

During the first quarter of 1914, says the London Economist, "the amount of capital raised for the United States has dwindled very much, owing to the enforced inactivity of the railways regarding extensions." The aggregate of security flotations in London during this three months' period was $488,000,000. Of this huge amount of capital exchanged for securities in the British investment market, only about $71,000,000 was for commercial undertakings in the British Isles. The rest went to other parts of the world, most largely to Canada, Australia, Argentine and South Africa. Only $19,000,000 came to the United States, and most of this amount was for electric lighting and power companies. The capital secured from British investors for the development of American railways was negligible.

Capital Timid or Scarce.

The reasons why the American railways are inactive and do not obtain capital for extensions are mainly two: First, the hostility of our government to the railroads has so clouded their prospects with uncertainty that investors abstain from purchases except at such disadvantageous terms as to make new security issues financially unwise; and, second, that the capital markets of Europe have been so heavily drained during the past few years by the demands of commerce and expenditures for war that the present supply of investment capital in Europe is relatively scarce.

At Paris the situation is even worse than at London. In the first place, after the Balkan War broke out, nineteen months ago, the big Paris banks secretly loaned huge sums to the Balkan countries, expecting to be reimbursed by funds obtained from investors through the sale of new Balkan government bond issues. Last fall it appeared that the French crisis would be relieved by this procedure, but the plans of the Paris bankers were frustrated by the demands of the French government for money.

Recently, however, the Paris banks have floated a $35,000,000 bond issue for Greece, and several other offerings of new securities have been absorbed in the French market, but so long as the big bond houses at London and Paris are loaded up with huge amounts of undigested securities from other countries, as at present, it is a moral certainty that they will advise their customers against the purchase of American Railway securities in order to confine investment attention to the "goods" they have to sell.

Unfortunately for the business outlook in the United States, moreover, the ruinous losses sustained by many foreign investors holding the securities of the Frisco, Rock Island and several other properties have tended also to prejudice them against the securities of even those American railways which are in good financial condition.

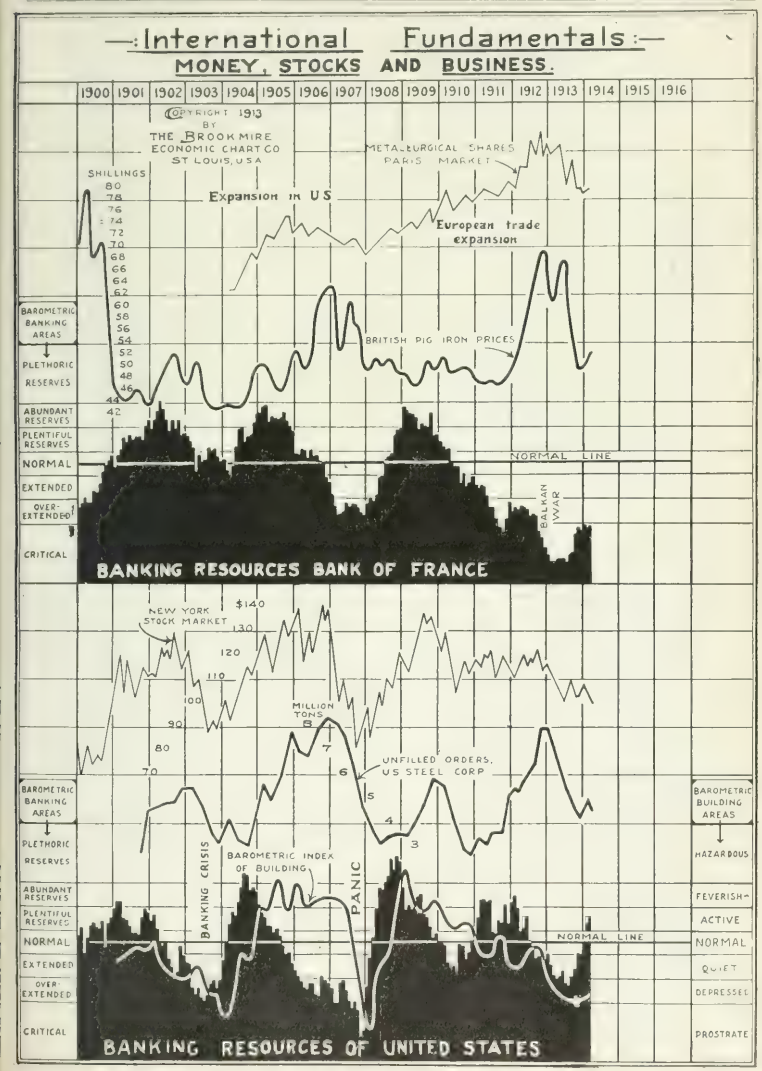
Further Recuperation Abroad Imperative.

If we are to enjoy a period of sustained activity for a period of years, international financial conditions must be such as will permit the continuous favorable reception of American stocks and bonds abroad, for before materials can be bought and wages paid for purposes of new Railroad construction, new securities must be sold to the investing public to obtain working capital.

When a new issue of the stocks or bonds of an American Railroad is to be made, some New York underwriting house generally undertakes to sell the same to investors throughout the world by offering subscriptions to brokerage houses in New York, Boston, Chicago, Philadelphia, St. Louis and other cities in the United States, as well as in Europe, and although the United States is much less dependent upon Europe than was the case thirty or forty years ago, new financing by corporations in this country cannot be satisfactorily accomplished unless large amounts of the new securities offered are taken by investors in Europe, especially England, France and Germany.

For instance, although the prosperity of the era from 1901-1907 was based largely upon the physical resources of the United States and the efficiency and commercial genius of the American people, the rapid development of that period would have been impossible without the large amounts of working capital secured from Europe in

the years when the Banking Index of the Bank of France was above normal. At the present time European financial conditions are improving and indications are that we shall be able to borrow money extensively from foreign countries during the next few years, but just now foreign financial houses cannot handle any large amounts of American securities—the present over-extended position of the banking index of



the Bank of France proves this.

The Business Outlook.

The two fundamental factors which favor a period of improvement and rising prices later in the year are (1) the favorable condition of the soil and winter wheat crop, and (2) the fact that the banking index of the UNITED STATES BAROMETER CHART is approaching the area of Abundant Reserves.

Plentiful banking resources are absolutely necessary as a prerequisite to improvement in the steel trade, for without easy credit conditions the Railroads cannot borrow money at reasonable terms, and unless the Railroads participate in a general buying movement the steel business cannot enjoy a sustained increase in activity. A substantial amount of Railroad buying can be expected during 1914, owing to the fact that they are badly in need of new equipment as a general thing; but the banks cannot afford to extend credit liberally to the Railroads beyond their urgent current needs unless the crop outlook promises an increase in agricultural wealth sufficiently large to justify hope for increased Railroad earnings, and this is why sustained expansion of the steel industry will require satisfactory crops as well as easy money conditions.

The two factors which are unfavorable to a speedy recovery in the steel markets are (1) that as a result of the lower tariff schedules there will be increased competition with foreign producers at a time when business depression in Europe is growing more accentuated, so that American manufacturers will be very cautious about advancing quotations through fear of losing the seacoast markets; and (2) that the foreign capital markets are still unfavorable to the sale of American Railroad securities to European investors.

The one uncertain factor which has become the most important element in determining business sentiment for the moment is the matter of increasing freight rates on the Eastern roads. A favorable decision together with easy money conditions would start the ball rolling toward industrial recovery; and if in addition the harvests prove plentiful next fall, we should have an adequate basis for genuine prosperity. But a decision unfavorable to the Roads, together with the two unfavorable factors mentioned above, would tend to delay industrial recovery.

With the Banking Index of the UNITED STATES BAROMETER CHART rising into the area of Abundant Reserves, however, regardless of temporary obstacles, it may be positively predicted that the next long swing in securities and business will be upward.

TOPICAL TALKS ON IRON.

XIV. Tonnage Concepts.

To a few men, engaged in the production or sale of steel, tonnage concepts of steel come easy, but to many directly engaged in the industry, and to the average layman, tonnage statements mean very little. Given a stated number of tons of steel, few men can form any idea of what the steel would do, while given a certain structure or piece of work the idea of how many tons of steel is involved is very vague. It may be of interest to mention a few instances of what tonnages mean.

Standard railroad track, laid in the heaviest section of rail commonly employed, 100 pounds to the yard, requires 157.1 gross tons per mile. The production in 1913, therefore, 3,500,000 tons, would lay about 20,000 miles of track. By trade custom standard rails are 50-pound and over per yard, light rails being under that limit, but in practice there is a fairly wide gap between light and standard rails, and the average weight of rails used in standard steam track is not far from 85 pounds.

Locomotives, which are built at an average rate of 4,000 to 5,000 a year, weigh on an average 100 gross tons apiece, or a trifle more, so that a normal year means about half a million tons of locomotives turned out. For industrial purposes and for small public roads locomotives usually run under 200,000 pounds. In relatively rare instances, and only for special service, locomotives are built above 400,000 pounds in weight. In 1913 the total number of locomotives ordered weighing above 400,000 pounds was 65, the average weight being 422,000 pounds. There are about 60,000 locomotives now in service on the regular steam roads, with an average weight of a trifle under 75 gross tons each, making a total weight of about four and a half million tons. All weights here given are of locomotives only, excluding tenders. The average weight of locomotives in service is increasing as the new ones added are much

heavier than the old ones discarded.

Approximately half of all the freight cars now being built are of 100,000 pounds capacity. A few are built of slightly more than 100,000 pounds capacity, while the other favorite capacities are 80,000 and 60,000 pounds. Relatively few cars run as low as 60,000 pounds. Nearly all cars built are all-steel or steel underframed, the amount of iron and steel actually entering the car generally ranging from 12 to 20 gross tons.

Passing now to something light, by way of diversion, a full year's output of tin plate is about a million gross tons, equal to 200 square miles. Made into two-pound tin cans the product would be 8,600,000,000 cans. The population of continental United States is now estimated at 98,781,000, so that there would be 87 cans per capita, equivalent to about 50 square feet. As a matter of fact a large part of the output is so made up, and the consumption of tin cans per capita per year easily runs into the dozens. That explains the million tons a year of a product so light as tin plate, and yet a former president of the steel corporation used to refer to the tin plate branch as "the toy department." A base box of tin plate, it may be remarked, is 31,360 square inches, being 112 sheets 14x20 inches, and the average weight per box is about 100 pounds.

It would be interesting to have lineal concepts of such longitudinal articles as wire and pipe, but nothing can be done in this direction because the weights vary so widely. A full year's output of pipe, for instance, is about two and a quarter million gross tons, but if this were all made into ⅜-inch, formerly the most common size of ordinary merchant pipe, it would involve no less than 1,700,000 miles, whereas if the steel were made into 12-inch line pipe, a size far from the largest employed, the length would be only about 15,000 miles.

Taking the total make of pig iron in the United States in a year at 31,000,000 gross tons, or approximately the output of 1913, this quantity would cover one square mile to a height of about five and a half feet. The total rolled iron and steel would make a layer about a foot less in thickness.

EFFICIENCY DEFINED.

A Higher Development of Common-Sense.

At the inaugural reunion dinner of Baltimore & Ohio officials and employees held in this city, Charles W. Tomlinson, general Eastern freight agent, defined the science and study of efficiency as a higher development of common-sense.

"The science and study of efficiency," he said, "is a matter of recent years, but like the tango and maxixe, it has become a wave, and is being advocated and studied on all sides. I recall an instance on the Baltimore & Ohio Railroad which occurred while I was representing the company in the State of Michigan. I might inject a point of interest in connection with what I am about to say: that the Baltimore & Ohio road was among the first railroads of this country to build a freight car thirty-three feet in length, building fifty of them as an experiment to take care of lumber business out of Michigan, thus enabling lumber shippers to make two piles of sixteen-foot lumber in one car, the additional three feet in the length of this car enabling them to double its capacity.

"These cars were sent to Michigan with an injunction that they must not be loaded for points on the Wheeling & Pittsburgh division, where the curves were short. Regardless of this, however, one car was loaded for Washington, Pa., reached Wheeling, and there held up because it would not run over that division—Wheeling to Washington, Pa. The car was ordered to Benwood Junction for transfer. Other help not being available at that point, the section boss was ordered to transfer the car. His instructions were terse and to the point —transfer the car. He got a sixteen-foot length into one end of the car; having a thirty-foot car, he could not get the balance of the original shipment into the car in its original length. His instructions were to transfer the car. He figured it out that the only thing he could do was to saw the balance of the lumber in two, which he did, and in this manner he was able to get the shipment into the car.

"He did as he was told, but his method was not efficient from the company's standpoint at that time, nor would it now be

considered under the head of 'Efficiency.'

"Efficiency has a double value, a quadruple value, an unlimited value. It is not something to be reserved for the comprehension of the elect. It is not a thing to be called scientific management and used as a bugaboo. It is, on the contrary, nothing but common-sense applied to everyday affairs. The doing of a thing in a better, quicker, and more economical way than at present, the doing of a thing in the right way, the easy, the adept, the direct and natural way, rather than in the careless, slovenly, wrong, or round-about way. Efficiency is the duty not alone of every man to himself, but every man to his neighbor. It is a slogan that means prosperity, and a watchword of honest effort and will direct energy. Efficiency in the office means more and better business and larger profits, and rightly should receive first attention because all work originates and ends in the office.

"The price of inefficiency: I wish to couple these two viewpoints with this subject. The claim which the Baltimore & Ohio Railroad was obliged to pay for the sawing of the sixteen-feet lengths into eight-feet lengths, which, while it only reduced the length of it 50 per cent., reduced the value of it 75 per cent., was the price of inefficiency, but the adherence to instructions without regard to results. In other words, I assume that the section boss who did it felt that he was paid for what he did, and not for what he knew.

"Can you figure the price of inefficiency in the office clerk, who, when he dips his pen in the ink bottle, finds there is no ink there?

"The machinist who has a job on a whistle and on an eccentric, finishes the whistle and starts on the eccentric, and, before getting far, finds he has left half his tools on the cab.

"I might say, however, that with the plumber this kind of efficiency has become a science. Did you ever have a plumber come to your house to do a job who opened up his tool bag, looked at the job, and found that he had to go back to the shop to get another tool, adding three hours' time at plumber's rates to your bill?

"The one comprehensive word covering efficiency in its fullest and broadest sense is 'results,' not the initial result, but the final result. The unit measure is but the starting point, but the combination of the units brings about a complete and finished article of efficiency.

"This brings me to the outcome in summing up that, first, figures having but a relative value should always be measured by results. The unit having but an initial value should be combined with other units, and compressed into a complete and finished whole.

"This is expressed in the necessity for each unit of efficiency standing elbow to elbow, and shoulder to shoulder, to the next unit of efficiency, thereby making a compact and invincible whole, proof against the onslaught of our competitors, with whatever organization they may have at variance with our own.

"In its relation to traffic, based, of course, on my own experience, it has become an axiom with me that it takes talk to get freight, but it does not take talk to distribute it. The railroad paycheck comes chiefly from revenues produced by handling freight.

"Coöperation is kindred to efficiency in the successful operation of a railroad. The traffic department fully appreciates that while it secures the dollars, it is the saving of these dollars which enables the railroad to pay dividends. The saving devolves upon the operating department. There must be a margin, therefore, between the receipts and the disbursements.

"The more the traffic department can understand the difficulties with which the operating department contends, and the operating department can understand the necessities of the shipper and their relation to increased earnings, not only to keep pace with, but, if possible, keep in advance, the more satisfactory the final result will be to our superior officers and the owners whom they represent.

"Through past and growing conditions over which we have no control, we have at the present time practically reached a point when we have but one thing with which to purchase traffic—that is, service. When we can present to a shipper a service which is new to the man with the freight, and present it to him understandingly, and 'deliver the goods,' then will the Baltimore & Ohio Railroad Company, in my opinion, reach the position which it should and must hold of being one of the greatest railroads of the world, with untold natural resources as yet undeveloped."

THE ELECTRIC FURNACE.

Circular of Bureau of Mines Regarding Electric Furnaces For Iron and Steel.

The investigations that the Bureau of Mines is making into the metallurgical industries, the appliance of electricity to various processes, and especially in the manufacture of iron and steel, is given attention in Bulletin 67, "Electric Furnaces For Making Iron and Steel," just issued by the Bureau. The investigations into electric furnaces for making iron were made by Dorsey A. Lyon, and electric furnaces for making steel by Robert M. Keeney. The bulletin gives a historical review of the development of electric furnaces for making iron and steel, and discusses the problems which remain to be solved in the use of electric furnaces for the smelting of iron ores and the production of pig iron at a profit on a commercial scale. Mr. Lyon in discussing the electric furnace for the making of iron, states that the electric furnace was not developed as a competitor of the blast furnace, but for the purpose of finding a furnace and a process that would be able to produce iron in those localities where blast-furnace practice was not feasible, or where the increasing cost of suitable fuel was becoming prohibitive to upon the relative cost of either charcoal or coke and of electric power. As regards the latter, it must be cheap.

"In those electric-furnace iron plants that are operating at the present time only hydroelectric power is used. The cost of producing power for electric-furnace work must, of course, vary with local conditions, and hence depends upon the initial cost per kilowatt of installation. In general, there are few localities where the electric smelting of iron ores would be feasible with the electrical energy costing more than $20 to $30 per kilowatt year."

The second part of the report presents a brief historical review of the development of the electric furnace in the manufacture of steel up to the present time. Mr. Keeney describes in detail the types of electric furnaces in commercial operation for the manufacture of steel and, in general, types which have not yet attained wide use. He gives a description of the practice of the European and American electric-furnace steel plants and compares in a general way the different types of furnaces and the most established methods of steel manufacture with the electric furnace process.

Mr. Keeney states that, "The cost of making steel in the electric furnace varies with local conditions. The cost of power does not enter so largely into the final cost as it does in some other electrometallurgical processes, especially the refining of molten steel. Plants are operating successfully under a power cost of 1 cent per kilowatt-hour in localities where material can be obtained at the price common to other processes. Plants such as the one at Ugine, France, have been established in remote localities, where the cost of power is very low, 0.2 cent per kilowatt-hour, but the cost of material is high.

"For many years all high-grade steels were manufactured by the crucible process, but since the advent of the electric furnaces there has been a gradual adoption of that furnace for refining steel. For the complete refining of the highest grades of steel the use of the electric furnace is now thoroughly established in Europe. Any product that can be made by the crucible process can be made by the electric furnace, and in most cases with cheaper raw materials and at a lower cost. In the electric furnace complex alloy steels can be made with precision. The high temperatures attainable facilitate the reactions and alloys need not be used so largely for the purpose of removing gas. Very low carbon steels can be kept fluid at the high temperatures. Steels free from impurities and of great value for electrical apparatus can be made. With the electric furnace large castings can be made from one furnace, whereas in the crucible process steel from several crucibles must be used. For small castings, which require a very high grade metal free from slags and oxides, electrically refined steel is especially adapted. The electric furnace gives a metal of low or high carbon content as desired, hot enough to pour into thin molds and still free from slags and gases.

ELECTRIC FURNACES.

(Continued from previous page.)

still free from slags and gases.
the existing practice of smelting in blast furnaces.

"Broadly speaking," he declared, "it may be stated that the feasibility of smelting iron ores in an electric furnace depends

"There is now a tendency among consumers of rail and structural steel to require a higher-grade steel at an increased price rather than steel of acid Bessemer or even of basic open-hearth grade at a lower price. With the high cost of power that now prevails throughout the steel centers of the United States the electric furnace can not compete profitably with either the acid Bessemer or the basic open-hearth process in manufacturing steel of like grade from pig iron. It is in combination with either of these processes that the electric furnace seems destined to be prominent in steel manufacture. The cost of superrefining in the electric furnace the molten steel from either of these processes, exclusive of the cost of the molten steel, varies from $1.50 to $2.25 per ton, depending on the cost of power and the impurities to be removed."

CAR BUYING.

Freight cars ordered:		
First half 1912	85,000	
Second half 1912	150,000	
Year 1912		235,000
First half 1913	114,000	
Second half 1913	33,000	
Year 1913		147,000
January, 1914	10,000	
February	13,000	
March	7,000	
April	10,000	
Four months, 1914		40,000
Equivalent rate per year		120,000

GERMAN STEEL OUTPUT.

Production of steel ingots and castings in Germany has been as follows, in metric tons of 2,204.6 pounds:

1900	6,645,860	1907	12,063,632
1901	6,394,222	1908	11,186,379
1902	7,780,682	1909	12,049,834
1903	8,801,515	1910	13,698,638
1904	8,930,291	1911	15,019,333
1905	10,066,553	1912	17,301,998
1906	11,135,085	1913	18,958,819

The 1913 production showed a gain of 9.6% in one year and a gain of 116% in ten years.

UNITED STATES STEEL CORPORATION.

	Quarter ended Dec. 31, 1913.	Quarter ended Mar. 31, 1914.
Total earnings after deducting all expenses incident to operations, including those for ordinary repairs and maintenance of plants, and interest on bonds of the subsidiary companies	$23,036,349	$17,994,381
Less charges and appropriations for the following purposes:		
Sinking funds on subsidiary company bonds and depreciation and replacement funds	4,067,791	4,285,527
Sinking funds on U. S. Steel Corporation bonds	1,704,933	1,512,496
Net income	$17,263,625	$12,196,358
Interest on steel corporation bonds outstanding	5,607,237	5,600,279
Premium payable on bonds redeemable under sinking funds		227,023
Balance	$11,656,398	$6,369,056
Dividends:		
Preferred, 1¾%	6,304,920	6,304,919
Common, 1¼%	6,353,782	6,353,781
Deficit for the quarter	$1,002.304	$6,289,644

The following table shows the amounts appropriated each quarter since January 1, 1907, for new construction, surplus for each quarter, and what the surplus would have been if no reductions had been made for new construction:

	Construction Appropriations	Surplus	Total
1907.			
Quarter.			
1st	$14,500,000	$3,684,576	$18,184,576
2nd	18,500,000	3,497,080	21,997,080
3rd	15,000,000	4,911,711	19,911,711
4th	6,000,000	3,359,274	9,359,274
1908.			
Quarter.			
1st		7,865	7,865
2nd		195,595	195,595
3rd		5,152,023	5,152,023
4th		5,142,451	5,142,451
1909.			
Quarter.			
1st		3,026,674	3,026,674
2nd		5,894,244	5,894,244
3rd	10,000,000	2,155,113	12,155,113
4th	5,000,000	11,263,399	16,263,399
1910.			
Quarter.			
1st	5,000,000	6,532,531	11,532,531
2nd	7,500,000	6,410,093	13,910,093
3rd	7,500,000	3,578,063	11,078,063
4th	6,000,000	*5,591,968	16,928,719
1911.			
Quarter.			
1st		31,155	31,155
2nd		1,869,177	1,869,177
3rd		2,745,494	2,745,494
4th		89,638	89,638
1912.			
Quarter.			
1st		*6,292,134	*6,292,134
2nd		56,483	56,483
3rd		2,434,801	2,434,801
4th		7,410,979	7,410,979
1913.			
Quarter.			
1st		7,369,600	7,369,600
2nd		13,619,365	13,619,365
3rd		11,348,778	11,348,778
4th	†15,000,000	*16,798,528	*1,798,528
1914.			
Quarter.			
1st		6,289,644	*6,289,644

*Deficit. †Appropriation of $15,000,000 for new construction, etc., was charged out of surplus earnings for year 1913; in our table we charge it all out of fourth quarter, to make figures tally.

The unfilled tonnage compares with earnings as follows:

Quarter ended	Unfilled tonnage	Net earnings	Percentage tonnage to earnings
March 31, 1914	4,653,825	$17,994,381	25.8
December 31, 1913	4,282,108	23,036,349	18.6
September 30	5,003,785	38,450,400	13.0
June 30	5,807,317	41,219,813	14.8
March 31	7,468,956	34,426,801	21.7
Dec. 31, 1912	7,932,164	35,185,557	22.5
September 30	6,551,507	30,063,512	21.7
June	5,807,346	25,102,265	23.1
March 31	5,304,841	17,826,973	29.8
Dec. 31, 1911	5,084,761	23,105,115	22.1
September 30	3,611,317	29,522,725	12.2
June 30	3,361,058	28,108,520	11.9
March 31	3,477,301	23,519,203	14.6
Dec. 31, 1910	2,674,757	25,990,978	10.2
September 30	3,158,106	37,365,187	8.4
June 30	4,257,794	40,170,960	10.6
March 31	5,402,514	37,616,886	14.4
Dec. 31, 1909	5,927,031	40,971,309	12.5
September 30	4,796,833	38,246,907	12.5
June 30	4,057,939	29,340,491	13.8
March 31	3,542,595	22,921,265	15.5
Dec. 31, 1908	3,603,527	26,225,485	13.8
September 30	3,421,977	27,106,274	12.6
June 30	3,313,876	20,265,756	16.3
March 31	3,765,343	18,229,005	20.1
Dec. 31, 1907	4,642,553	32,553,995	14.3
September 30	6,425,008	43,804,285	14.7
June 30	7,603,878	45,503,705	16.7
March 31	8,043,858	39,122,402	20.5

MONTHLY EARNINGS.

	1914	1913	1912
January	4,941,337	$11,342,533	$5,243,406
February	5,655,611	10,830,051	5,427,320
March	7,397,433	12,254,217	7,156,247
April		13,072,710	7,509,207
May		14,554,556	8,846,821
June		13,592,537	8,740,237
July		12,936,658	9,322,142
August		12,657,430	10,583,377
September		12,856,312	10,157,993
October		11,430,461	12,485,412
November		7,392,166	11,120,749
December		4,213,722	11,579,396

ANNUAL EARNINGS.

Year	Earnings	Year	Earnings
1913	$137,133,363	1907	$160,984,467
1912	108,178,307	1906	156,624,273
1911	104,255,563	1905	119,787,658
1910	141,054,755	1904	73,176,522
1909	131,491,413	1903	109,171,152
1908	91,826,520	1902	133,308,764

GEOGRAPHIC MOVEMENT OF FOUNDRY IRON.

The geographic movement of foundry pig iron is rather interesting, and the diagram on the opposite page is given to suggest roughly some of the principal flows.

As a general rule, pig iron is produced at centers where the raw materials, iron ore, coke and limestone, can be assembled most cheaply. Nearly four tons of raw material must be assembled to produce one ton of pig iron, hence the cheapest assembly point, rather than the point of consumption, usually determines the location of the blast furnace.

The cost of production varies between districts and in general each district has grown until its iron met on equal delivered prices the iron of some other district. There are, however, some divergences from this general rule. One is caused by the fact that many consumers prefer to mix iron from different districts, in particular, consumers in a large territory in the central west mix southern and northern pig iron. Another divergence is that the silicon irons of southern Ohio move farther than they would if price per ton were the only consideration.

Southern pig iron, of course, moves the greatest distances, because the southern furnaces have a very low assembling cost and can afford to stand the freight in competition with northern irons which move shorter distances.

In the Chicago, Cleveland and Pittsburgh-Valley districts the consumption is largely local, very little iron moving far afield. Buffalo has a large local consumption, but also ships much iron east. Eastern Pennsylvania consumes much of its iron, but also ships to New York and New England. While New England is not a particularly large tonnage consumer it draws iron from more sources than other districts, Buffalo, eastern Pennsylvania and the South, and lately also from Nova Scotia.

ORE PRICES ANNOUNCED.

Sellers of Lake Superior Iron Ore Name Prices for 1914 Season. Return to 1912 Level.

On Friday, May 1st, some of the Cleveland ore firms named prices on Lake Superior ores for the season of 1914, on the basis of the 1912 schedule and thus involving reductions of 65 cents on Bessemer and 55 cents on non-Bessemer ores from the 1913 basis.

The price announcement was unexpected, as there was no important enquiry for ore. In the old days the sellers conferred, sometimes for weeks, before reaching a decision as to prices, and thus when prices were announced the figures carried weight. In recent years the fixing of prices has usually occurred through one or more individual sellers making a break and effecting some large scales. As it has been more or less customary for each seller to guarantee prices in contracts against his own declines, the making of these sales likewise gave weight to the prices. As matters stand today the market is not so definitely established at the prices now named, but in the absence of information to the contrary they are to be taken as representing the market. Prices for a number of years are given below.

Lake Superior Iron Ore.

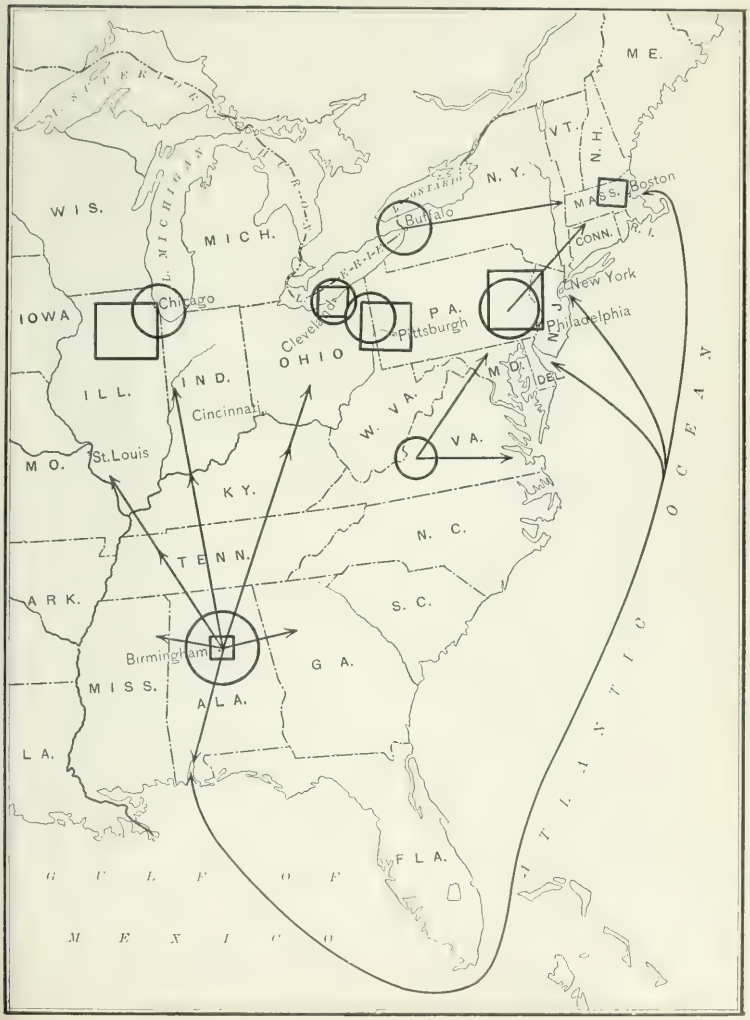
(On Lake Erie Dock).

	Old Range		Mesabi	
	Bess.	Non-Bess.	Bess.	Non-Bess.
1887	6.00	5.00		
1888	4.75	4.00		
1889	5.00	3.75		
1890	6.00	4.50		
1891	4.75	3.75		
1892	4.50	3.75		
1893	4.00	3.25		
1894	2.75	2.00	2.50	1.75
1895	2.90	2.25	2.25	1.90
1896	4.00	2.60	3.25	2.40
1897	2.65	2.25	2.10	1.80
1898	2.75	1.80	2.15	1.70
1899	2.80	2.00	2.25	1.90
1900	5.50	4.15	4.40	4.00
1901	4.25	2.85	2.75	2.35
1902	4.25	3.00	3.00	2.60
1903	4.50	3.60	4.00	3.20
1904	3.00	2.60	2.75	2.35
1905	3.75	3.20	3.50	3.00
1906	4.25	3.70	4.00	3.50
1907	5.00	4.20	4.75	4.00
1908	4.50	3.70	4.25	3.50
1909	4.50	3.70	4.25	3.50
1910	5.00	4.20	4.75	4.00
1911	4.50	3.70	4.25	3.50
1912	3.75	3.05	3.50	2.85
1913	4.40	3.60	4.15	3.40
1914	3.75	3.05	3.50	2.85

Particularly 1894 to 1899 some grades sold at materially higher prices. Base ore content (natural state) 1906 and some previous years; Bessemer, 56.70; non-Bessemer, 52.80; 1907 and later: Bessemer, 55.00; non-Bessemer, 51.50.

FOUNDRY PIG IRON—Production and Consumptio n

The following diagram represents approximately the important geographic movements of foundry pig iron. The area of circles represents roughly the tonnage production while the area of squares represents roughly the tonnage consumption, lines with arrows representing the movement.



IRON AND STEEL.

THE SITUATION.

Another month has passed with no improvement, and rather with some decrease in the rate of buying. April, however, has been a greater disappointment than March, because more was expected of it. The January burst in buying surprised everyone, and was recognized as representing only temporary activity, the replenishment of depleted stocks with bargain priced material. A lull was expected to follow, but by March, or April at the farthest, a fresh buying movement was expected. If buyers would take hold as they did in January conditions, they would take hold much more vigorously on the eve of spring. They did not, nor have they yet shown any signs of taking hold, though spring is well entered.

It is needless to argue; almost everyone will admit that the steel market has not acted in the past two months as it would act in normal times. Stocks have been liquidated, prices are down close to the cost line, and fairly steady at that, yet the rate of buying decreases. The times are not normal. The cause of the market depression is not within the steel industry, it is without. In this department discussion must be confined to iron and steel trade conditions, for once to cross the line would mean to wander far afield. In discussions as to general business conditions, for instance, one finds some men insisting that the United States has been passing through an industrial depression since the panic of October, 1907, while others almost take it for granted that we have just entered into an industrial depression, and discuss as the main issue how long the depression will continue.

THE FUTURE.

We should emphasize what has been referred to in these columns before, that in recent years the steel industry has shown great activity in times of quite moderate general industrial prosperity. The steel industry has shown a remarkable ability to "come back" and to find full employment for itself in circumstances which were not especially favorable. Mark, for instance, that the steel industry ran at capacity from midsummer, 1912, through October, 1913, when the country's commerce as a whole was not heavy, and when the work of the people ran little to expansion and extension. In 1906 the steel trade did no more than operate to capacity—it could not—but in that year all industry was at its maximum and extensions of all sorts were in progress. The keynote to this divergence is, of course that the steel industry experienced a particularly severe chill after 1907, whereby it has increased its capacity at a much slower rate than formerly, whereas new uses for steel have appeared, the old uses have expanded much as they did in former years. Not since 1906 has there been a full demand for steel in keeping with the industrial and engineering progress which the country has made. The demand of 1912-13 was not nearly as great as it would have been had financial and industrial conditions been as good as they were in 1906, yet it operated the steel industry at capacity.

In substance, the steel industry is undersized for the growth of the country. Some day the latent needs, the latent power, will be vivified, and then the steel industry of the United States will experience as spectacular a volume of demand, relative to capacity, as has ever been seen in its history. We do not know when that time will come. Late last year we thought it would have a definite and clearly marked beginning in the first half of this year, and were mistaken, but we hold that by as much as the movement is delayed, by so much will it be intensified when it does come, through the country's growth meanwhile in population, in wealth derived from the soil and the mines, and in knowledge and skill to use advantageously the products of the steel industry. A humble beginning may possibly occur before July 1, but the condition at the moment, with stocks so low and prices so close to the cost level, is such that a moderate improvement in demand may occur at any moment without its proving to be the beginning of the long and great period of prosperity which eventually is promised.

Trends in the Trade.

The rate of buying of pig iron and steel products appears to have decreased in April, making the month a poorer one than

IRON AND STEEL.

March. The rate of production necessarily decreased, the steel mills operating at between 65 and 70% of capacity at the beginning of April and at little if any over 60% at the close. Without an improvement in buying a lower rate still is to be expected before the close of May, for buying of late has hardly exceeded 50% of capacity.

Pig iron prices showed no change during April, while steel prices sagged slightly at several points.

Pig Iron.

The merchant furnaces suffered in April not only from an almost complete lack of buying; they suffered also from tonnages previously sold not being taken out according to contract. As a result stocks have been accumulating at some points, though not at a great rate.

The American Pig Iron Association, formed January 8th, 1914, has been active in computing composite statements of production cost in different districts. The results show that much iron has been sold at a loss, and the effect upon merchant furnacemen has been to induce them to refrain from cutting prices, hence a practically stationary market when conditions as to production and consumption would have prompted the naming of lower prices.

A superficial view often expressed these days is that the furnacemen have learned that they were producing pig iron at a loss, the inference being that each furnaceman learned this as to himself. Such a conclusion is rather insulting to the individual furnaceman, suggesting that he was unable to draw up his cost sheet until an association showed him how. Our own view is that what really occurred was that the individual furnaceman found that his competitors were losing money more rapidly than he thought, hence he need not endeavor to compete with them by cutting prices. The furnacemen individually had been too modest in comparing the strength of their position with that of their competitors.

The average price of pig iron showed no

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered).

	Bessemer, Valley	Basic, Valley	No.2 fdy, Basic Phila.	No. 2 Phila.	No. 2 fdy X Buffalo.	No. 2 fdy Cleveland.	No. 2 fdy Chicago.	No. 2 fdy Birmingham.	Ferro-manganese.*	Furnace coke†
1913—										
Jan. ..	17.25	16.50	17.50	18.00	18.49	17.50	17.75	18.48	13.72	65.00	3.85
Feb. .	17.25	16.43	17.12	17.75	18.23	17.22	17.44	17.87	13.46	65.00	2.60
Mar. ..	17.20	16.14	16.60	17.50	17.81	16.79	16.75	17.75	13.04	64.00	2.47
April .	17.00	15.87	15.66	17.00	17.49	15.96	15.41	17.60	12.60	61.00	2.20
May ..	17.00	15.25	14.73	16.50	16.77	15.58	15.56	16.67	11.74	61.00	2.15
June ..	16.34	14.50	14.18	16.50	16.26	14.43	14.95	16.24	10.89	61.00	2.20
July ..	15.86	14.40	13.88	15.90	15.66	14.01	14.68	15.38	10.50	59.00	2.50
Aug. ..	15.63	14.09	13.94	15.25	15.56	14.20	14.50	15.44	10.85	56.70	2.50
Sept...	15.75	14.00	14.00	15.25	15.97	14.25	14.55	15.50	11.20	54.50	2.37
Oct. ..	15.67	13.97	13.83	15.25	15.94	14.25	14.73	15.50	11.48	50.28	2.10
Nov...	15.23	13.28	13.57	15.13	15.61	13.96	14.35	15.43	10.80	50.00	1.88
Dec. ..	14.95	12.83	13.38	14.75	14.98	13.32	13.76	14.83	10.50	47.00	1.77
Year ..	16.26	14.77	14.87	16.23	16.56	15.12	15.37	16.39	11.73	57.87	2.38
1914—											
Jan. ..	14.06	12.51	13.00	14.25	14.69	12.76	13.30	14.35	10.63	43.42	1.88
Feb. ..	14.13	13.21	13.21	14.00	14.88	13.02	13.56	14.46	10.52	38.33	1.90
Mar. ..	14.20	13.05	13.25	14.10	15.00	13.38	13.75	14.75	10.75	38.40	1.92
April .	14.00	13.00	13.25	14.25	15.00	13.75	14.21	14.75	10.52	38.00.	1.90

*Contract price, f.o.b. Baltimore; †Prompt, f.o.b. Connellsville ovens.

COMPARISON OF METAL PRICES.

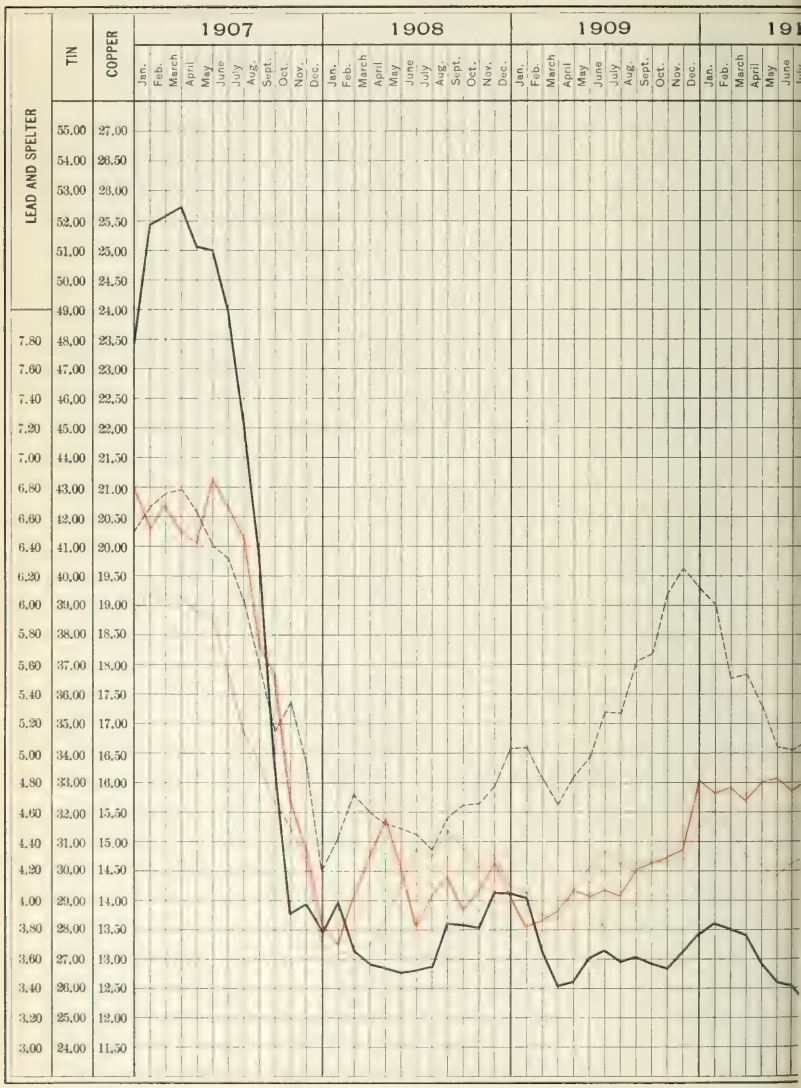
Pig Iron.	Range for 1912. High.	Low.	Range for 1913. High.	Low.	Range for 1914. High.	Low.	Closing Apr. 30th.
Bessemer, valley	17.25	14.00	17.25	14.25	14.25	14.00	14.00
Basic, valley	16.50	12.25	16.50	12.50	13.25	12.50	13.00
No. 2 foundry, valley	18.00	13.00	17.50	13.00	13.25	13.00	13.25
No. 2X foundry, Philadelphia	18.50	14.75	18.50	14.50	15.00	14.50	15.00
No. 2 foundry, Cleveland	17.75	13.25	17.75	13.50	14.25	13.25	14.25
No. 2X foundry, Buffalo	17.25	13.50	18.00	13.00	13.75	12.50	13.75
No. 2 foundry, Chicago	18 00	14.50	18.00	14.00	14.75	14.00	14.75
No. 2 Southern, Birmingham	14.00	9.75	14.00	10.50	10.75	10.50	10.50
Scrap Iron and Steel.							
Melting steel, Pittsburgh	16.25	12.50	15.00	10.75	12.00	11.00	12.00
Heavy melting steel, Chicago	14.00	10.75	13.25	9.00	11.00	9.00	10.00
No. 1 R.R. wrought, Pittsburgh	16.25	13.00	15.75	11.50	12.75	11.50	11.75
No. 1 cast, Pittsburgh	15.25	12.35	15.00	11.50	12.25	11 50	12.25
Heavy steel scrap, Philadelphia	17.00	11.75	14.75	9.75	11.25	9.75	11.00
Iron and Steel Products.							
Bessemer rails, mill	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Iron bars, Pittsburgh	1.65	1.25	1.65	1.35	1.35	1.30	1.30
Iron bars, Philadelphia	1.67½	1.22	1.67½	1.22½	1.27½	1.22½	1.22½
Steel bars, Pittsburgh	1.40	1.10	1.40	1.20	1.20	1.15	1.15
Tank plates, Pittsburgh	1.50	1.10	1.50	1.20	1.20	1.15	1.15
Structural shapes, Pittsburgh.	1.50	1.10	1.50	1.20	1.25	1.15	1.15
Grooved steel skelp, Pittsburgh	1.45	1.15	1.45	1.15	1.20	1.15	1.20
Black sheets, Pittsburgh	2.25	1.80	2.35	1.80	1.95	1.80	1.85
Galvanized sheets, Pittsburgh	3.40	2.80	3.50	2.80	2.95	2.80	2.80
Tin plate, Pittsburgh	3.60	3.30	3.60	3.40	3.40	3.30	3.30
Cut nails, Pittsburgh	1.70	1.50	1.70	1.60	1.60	1.60	1.60
Wire nails, Pittsburgh	1.75	1.55	1.80	1.50	1.60	1.50	1.60
Steel pipe, Pittsburgh	79%	81%	79%	80%	79½%	80%	80%
Connellsville Coke at ovens.							
Prompt furnace	4.25	1.80	4.25	1.75	2.00	1.80	1.85
Prompt foundry	4.50	1.90	4.50	2.40	2.50	2.40	2.40
Metals—New York.							
Straits tin	51.05	42.05	50.70	36.75	41.12½	34.35	34.35
Lake copper	17.80	14.15	17.00	14.50	15.50	14.37½	14.50
Electrolytic copper	17.75	13.95	16.87½	14.12½	14.87½	14.00	14.20
Casting copper	17.65	13.75	16.62½	13.87½	14.65	13.87½	14.10
Sheet copper	23.90	19.00	22.00	19.75	20.25	19.75	19.75
Lead (Trust price)	5.10	4.00	4.75	4.00	4.15	3.80	3.90
Spelter	7.65	6.45	5.65	5.10	5.50	5.00	5.10
Cooksons antimony	10.50	7.12	9.00	7.25	7.37½	7.15	7.20
Aluminum 98-99%	28.00	18.50	27.12½	18.50	19.00	17.75	17.87½
Silver	64⅛	54¼	62⅛	56⅛	59¼	57⅛	59¼
St. Louis.							
Lead	5.02½	3.90	4.72½	3.85	4.10	3.65	3.78¾
Spelter	7.50	6.25	5.85	4.95	5.35	4.85	4.90
Sheet zinc (f.o.b. smelter)	9.00	8.00	9.00	7.00	7.50	7.00	7.00
London.	£	£	£	£	£	£	£
Standard tin, prompts	233	183¾	232	166½	188	154¼	156¾
Standard copper, prompts	80⅛	60⅛	77	61¾	66¾	62½	64
Lead	23¾	15⅞	21½	15⅝	20⅛	18	18¾
Spelter	27⅝	25	26¼	20¼	21¾	21⅜	21½
Silver	29⅛	25⅜	29⅜	25⅛	27¼	26⅞	27¼

THE
STEEL AND METAL
DIGEST

Metal Price

COPPER - TI

Plotted according to the monthl
Straits Tin, New York; Le



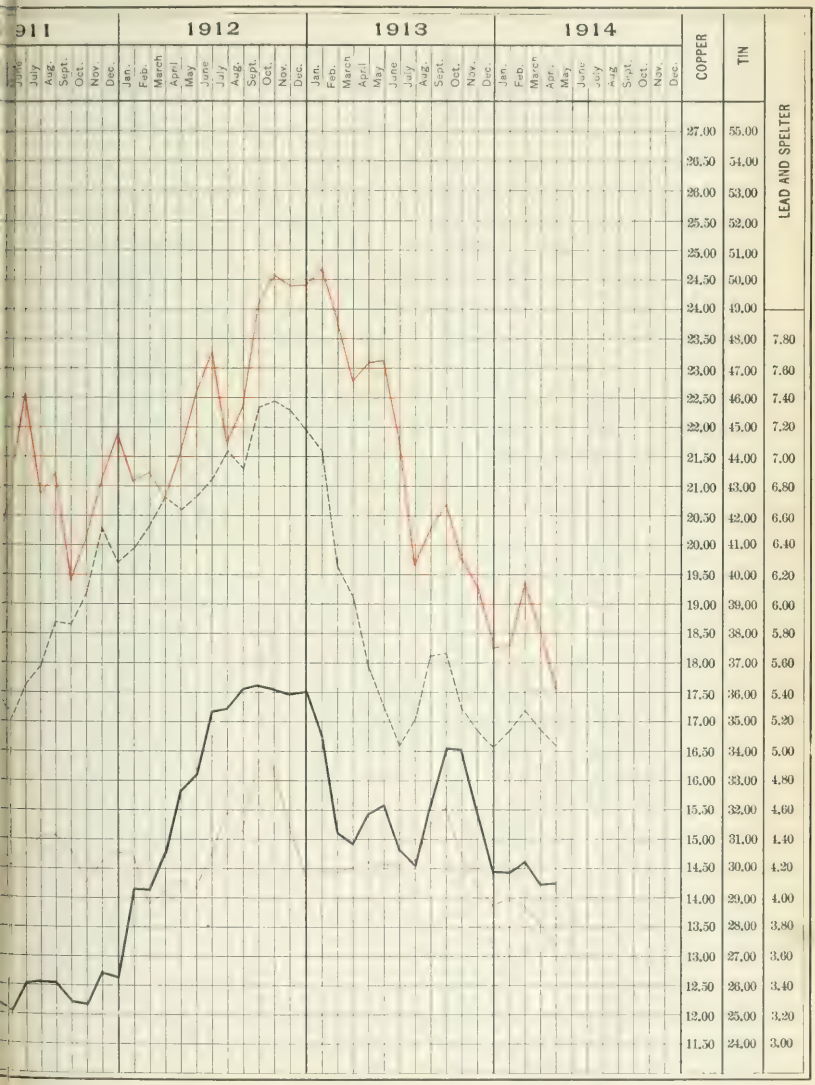
Straits Tin ———— *Lead* - - -

Since 1907.

AD - SPELTER

Electrolytic Copper, New York;
ie Western Spelter, St. Louis.

THE
STEEL AND METAL
DIGEST



COMPARISON OF SECURITY PRICES.

Railroads.	Range for 1912. High.	Low.	Range for 1913. High.	Low.	Range for 1914. High.	Low.	Closing. May 1,
Atchison Top. & Santa Fe...	111¾	103¼	106⅛	90¼	100⅛	91¼	95½
Atch. Top. & Santa Fe, pfd.	104¼	101⅜	102¼	96	101⅜	97¼	100¼
Baltimore & Ohio	111⅞	101¼	106⅛	90⅛	95⅛	87¼	90½
Canadian Pacific	283	226½	266¾	204	220½	186½	194¾
Chesapeake & Ohio	85¼	68¼	80	57⅛	68	50⅛	53¼
Chicago, Mil. & St. Paul	117⅞	99⅜	116¼	96¼	107⅛	94⅛	99¼
Erie R. R.	39⅛	30	32½	20¼	32½	25¾	29
Great Northern, pfd.	143⅞	126	132⅝	115½	134¾	119	123½
Lehigh Valley	185⅝	155⅞	168⅛	141¼	156¼	132¼	139½
Louisville & Nashville	170	138	142¼	126¼	141⅞	131¼	134½
Missouri, Kansas & Texas ...	31⅝	25½	29⅛	18⅛	24	14¼	16⅛
Missouri Pacific	47¾	35	43⅝	21¼	30	15¼	19⅜
New York Central	121⅞	106⅛	109¾	90⅜	96⅝	86⅝	92½
N. Y., N. H. & Hartford ...	142¼	126	129⅞	65⅝	78	65¼	70⅝
Northern Pacific	131½	115⅜	122⅝	101¾	118½	106½	111¾
Pennsylvania R. R.	186⅞	119⅞	123¾	106	115½	108¼	110¾
Reading	179¼	148⅛	171¾	151⅜	173¼	157⅞	164⅛
Rock Island	30½	22⅜	24⅞	11⅝	16⅝	2½	3⅛
Southern Pacific	115½	103½	110	83	99½	86¼	92⅛
Union Pacific	176¾	150¾	162¾	137¾	164⅜	148⅞	156⅜
Wabash	9½	3¾	6	2	4⅝	⅝	¾
Industrials.							
Amalgamated Copper	92¾	60	80½	61	78⅛	68¼	73½
Am. Beet Sugar	77	46½	50½	19¾	28⅜	19⅝	21½
American Can	47⅜	11¼	46⅞	21	35⅛	22⅞	26½
American Can pfd.	126¼	90⅝	129½	80½	96	87¼	89⅞
Am. Car & Foundry	63⅝	49⅜	56⅜	36½	53½	44⅛	49
Am. Cotton Oil	60¼	45½	57⅜	33½	46½	37½	40
Am. Locomotive	47½	31¾	44½	27	37¼	28	32
Am. Smelting & Refin'ng	91	66½	74¾	58½	71⅛	57	63½
Brooklyn Rapid Transit	94½	76¾	92¾	83¾	94¼	87½	91½
Chino Copper	50⅜	25	47⅝	30⅜	44	37	40½
Colo. Fuel & Iron Co.	43¾	23⅛	41½	24½	34½	24	28
Consolidated Gas	149½	135¾	142⅜	125⅛	139½	127½	131⅛
General Electric	188½	155	187	139¾	150⅝	140	147
Interborough Metropolitan ...	22	16¼	19⅝	12⅜	16⅜	13¼	15
International Harvester	126⅞	105¼	111½	96	113½	100¾	105
International Steam Pump ...	34	12	18½	4½	9⅞	6⅛	7
Lackawanna Steel	55½	28	49⅞	29⅞	40	32	32
National Lead	68¼	51⅛	56¼	43	52	45	45
Ray Consolidated Copper	24⅛	16	22	15	22½	17¾	21¼
Republic Iron & Steel	35⅛	15¾	28⅛	17	27	20	22¼
Republic Iron & Steel, pfd...	93⅜	64½	92¼	72	91¼	80	85½
Sloss-Sheffield	59¾	39¼	45½	23	35	25	26
Texas Co.	130⅝	81	132½	89	149⅞	128	143
U. S. Rubber	67⅞	45¼	69½	51	63	53¼	57¾
U. S. Steel Corporation	80¾	58¾	69⅛	49⅞	67¼	56	59⅞
U. S. Steel Corporation, pfd.	117	107¼	110¾	102½	112¾	106½	109⅜
Utah Copper	67½	52½	60⅝	39⅝	57⅝	48⅞	54⅝
Va.-Carolina Chem.	57¼	40¾	43⅜	22	34⅞	25¾	26¾
Western Union Telegraph ...	86¼	72	75⅛	54⅛	66⅞	57¾	62

IRON AND STEEL.

change in April. Among important descriptions of pig iron the only changes were an advance of 50 cents in Cleveland iron and a decline of 25 cents in southern iron, to $10.50, Birmingham. The average price of pig iron is about 42 cents higher than on February 1st.

The general price movement in pig iron is shown by the following statement of the movement of our **composite pig iron:**

	On first of month.	Change during month.
January (1913)	$17.450	—17.5c
February	17.275	—33.0
March	16.945	—32.0
April	16.621	—61.0
May	16.015	—76.5
June	15.250	—55.0
July	14.700	—25.0
August	14.450	+17.5
September	14.625	+15.0
October	14.775	—20.0
November	14.525	—47.5
December	14.050	—50.5
January (1914)	13.545	—12.0
February	13.425	+45.0
March	13.875	— 2.5
April	13.85	0.0
May	13.85	

Rather unexpectedly, some of the Cleveland ore firms on Friday, May 1st, announced their selling prices for Lake Superior ore, on the basis of the 1912 schedule, or reductions of 65 cents on Bessemer and 55 cents on non-Bessemer from the 1913 prices. The 1914 prices are therefore as follows, at lower lake docks: Old range Bessemer, $3.75; old range non-Bessemer, $3.05; Mesabi Bessemer, $3.50; Mesabi non-Bessemer, $2.85.

The 1913 decline in pig iron may properly be held to have discounted this reduction in ore. The production and sale of pig iron at a loss to the furnaces of $1 a ton or more, as lately discussed in the trade, has been of course in large part a recognition that ore prices were likely to decline for the 1914 season. The merchant furnaces in substances wrote off the depreciation in the value of their ore piles be-

FINISHED STEEL PRICES.

(Averaged from daily quotations, f.o.b. Pittsburgh.)

	Shapes.	Plates.	Bars.	Pipe.	Wire.	Wire Nails.	Cut Nails.	Sheets Black.	Sheets Galv.	Tin plate.	Composite Finished steel.
1913—											
January	1.50	1.50	1.40	80	1.55	1.75	1.70	2.32	3.47	3.60	1.7737
February ..	1.45	1.45	1.40	80	1.55	1.75	1.70	2.35	3.50	3.60	1.7625
March	1.45	1.45	1.40	80	1.56	1.76	1.70	2.35	3.50	3.60	1.7646
April	1.45	1.45	1.40	79¾	1.60	1.80	1.70	2.35	3.45	3.60	1.7743
May	1.45	1.45	1.40	79¼	1.60	1.80	1.70	2.35	3.40	3.60	1.7786
June	1.45	1.45	1.40	79	1.55	1.75	1.70	2.29	3.38	3.60	1.7719
July	1.45	1.45	1.40	79	1.50	1.70	1.70	2.25	3.31	3.60	1.7600
August	1.45	1.44	1.40	79¾	1.47	1.67	1.60	2.20	3.25	3.60	1.7400
September..	1.40	1.40	1.40	80	1.43	1.63	1.60	2.12	3.17	3.60	1.7093
October ...	1.39	1.36	1.39	80	1.40	1.60	1.60	2.04	3.08	3.50	1.6779
November	1.34	1.29	1.30	80	1.40	1.60	1.60	1.98	2.98	3.40	1.6203
December ..	1.24	1.21	1.22	80	1.35	1.55	1.60	1.90	2.90	3.40	1.5558
Year	1.42	1.41	1.38	79¾	1.50	1.70	1.66	2.21	3.28	3.56	1.7241
1914—											
January ..	1.20	1.20	1.20	80	1.33	1.53	1.60	1.86	2.86	3.40	1.5394
February ..	1.25	1.21	1.22	79¾	1.40	1.60	1.60	1.95	2.95	3.40	1.5794
March	1.21	1.18	1.20	79¾	1.40	1.60	1.60	1.95	2.95	3.40	1.5638
April	1.18	1.15	1.15	79¾	1.40	1.60	1.60	1.90	2.89	3.39	1.5337

IRON AND STEEL.

fore the incident of the new prices on ore being actually made. It is understood that there is little if any inquiry for ore, and the announcement of prices is not likely to be followed by the heavy contracting which has usually immediately followed the annual ore announcement.

Coke prices have held quite stiffly despite the increasingly light demand. Connellsville furnace coke on contracts over a period of months is still held at $2.00, but the market as thus indicated is practically a nominal one, since there is no demand except for occasional small prompt lots, which go at $1.85 to $1.90.

Billets and Sheet Bars.

Without any cut price sales of note the market for billets and sheet bars has dropped back to about the low level of January 1st. There is no question that billets can be secured at $20 and sheet bars at $21, and concessions even from these prices might possibly be made if important orders were offered. At $20 billets are very near the cost of production. At least 25% of the steel capacity of the country cannot sell billets at less than $20 and avoid loss. Sheet bars, of course, furnish a different

U. S. STEEL CORPORATION'S OPERATIONS.

EARNINGS AND UNFILLED ORDERS.

Earnings by Quarters.

Net earnings by quarters since 1908:

Quarter.	1914.	1913.	1912.
1st	$17,994,381	$34,426,801	$17,826,973
2nd	.....	41,210,813	25,102,265
3rd	.....	38,450,400	30,063,512
4th	.....	23,036,349	35,185,557
Year	.....	137,133,363	108,178,307
	1911.	1910.	1909.
1st	$23,519,203	$37,616,876	$22,921,268
2nd	28,108,520	40,170,960	29,340,491
3rd	29,522,725	37,365,187	38,246,907
4th	23,155,018	25,901,730	40,982,746
Year	104,305,466	141,054,753	131,491,412

Unfilled Orders.

(At end of the Quarter):

	First.	Second.	Third	Fourth.
1903..	5,410,719	4,666,578	3,278,742	3,215,123
1904..	4,136,961	3,192,277	3,027,436	4,696,203
1905..	5,579,560	4,829,655	5,865,377	7,605,086
1906..	7,018,712	6,809,584	7,936,884	8,489,718
1907..	8,043,858	7,603,878	6,425,008	4,642,553
1908..	3,765,343	3,313,876	3,421,977	3,603,527
1909..	3,542,590	4,057,939	4,796,833	5,927,031
1910..	5,402,514	4,257,794	3,158,166	2,674,757
1911..	3,447,301	3,361,058	3,611,317	5,084,761
1912..	5,304,841	5,807,346	6,551,507	7,932,164
1913..	7,468,956	5,807,317	5,003,785	4,282,108
1914..	1,653,825	..	..	..

BOOKINGS AND SHIPMENTS.

In this table, first two columns, percentages of bookings and shipments to total capacity, are our estimates, while last column is derived from official reports of "unfilled tonnage" while third percentage column is directly computed from this tonnage column.

1912—	Shipments. %	Bookings. %	Difference. %	Difference. Tons.
January	70	95	+25	+294,960
February	78	85	+ 7	+ 74,479
March	85	68	—17	—149,359
April	92	124	+32	+360,044
May	93	101	+ 8	+ 86,098
June	94	99	+ 5	+ 56,363
July	82	95	+13	+149,733
August	92	110	+18	+206,296
September	98	135	+37	+388,132
October	98	187	+89	+1,042,874
November	96	120	+24	+258,512
December	97	104	+ 7	+ 79,281
January 1913	98	89	— 9	—104,796
February	98	82	—16	—170,654
March	93	77	—16	—187,758
April	93	51	—42	—490,194
May	95	41	—54	—654,440
June	93	47	—46	—517,105
July	90	55	—35	—407,961
August	90	75	—15	—175,888
September	92	74	—18	—219,683
October	87	74	—40	—490,018
November	70	59	—11	—117,420
December	50	40	—10	—114,239
January 1914	55	83	+28	+331,572
February	67	105	+38	+412,764
March	72	40	—32	—372,615

IRON AND STEEL.

proposition, for no one will seriously contend that it costs $1 more to make a ton of sheet bars than a ton of billets.

Finished Steel.

Plates, bars and shapes are 1.15c, and rather firmly held at that figure. Early in April there were reports of plates at 1.12½c and even 1.10c, but these reports have been disappearing. Producers seem to be rather strongly of the opinion that they should pass business rather than cut 1.15c. They show an inconsistency, however, in accepting relatively small orders at 1.15c, orders which cannot be filled as cheaply as really large orders.

On April 20th as to standard steel pipe and line pipe, and on May 1st as to oil country goods, the National Tube Company announced reductions approximately $1 a ton, thus eliminating the advances of February 2nd and re-establishing the lists of January 2nd. When announced the February 2 advances were presumably the first step in a general advance of $2 a ton, but the outcome makes it that the February advance was chiefly a paper advance, old prices being restored when old contracts were worked out.

Sheets have softened, until at the close of April black sheets at 1.85c and galvanized 2.80c. The spread of 95 cents per 100 lbs. between black and galvanized is the smallest that has ever been recognized in openly published quotations, the minimum in all the past having been $1.00. The reduction in the spread is partly a reflection of 4.90c spelter and partly a result of important improvements in galvanizing practice in the past two or three years.

If tin plates did not actually soften during April, at any rate it became commonly admitted that fairly attractive orders could be placed at $3.30 or less, "the regular season price" being $3.40, as announced November 3rd, 1913. The tin plate trade is flourishing, with the mills making coke plants operating practically at capacity, but April closed with tin at 34.35c, whereas the $3.40 tin plate price has been generally recognized as "based on 40-cent tin."

Wire products have experienced a fair movement in April from mill, but not as good as would have been the case had so much business not been anticipated early in the year, through the naming of particularly low prices. While the market is nominally based on $1.60 for nails, the shipments have been on the basis of $1.55 contracts, and if precedents are a guide there will be no further movement of importance until prices are reduced, though no reduction may occur until June.

RAILROAD EARNINGS.

The following table is compiled from the monthly reports of the Interstate Commerce Commission, and cover all railroads in the United States having gross income of $1,000,000 or over per year. The statements are per mile of road operated, and show gross revenue from operations, operating expenses and net operating revenue.

	1911-12			1912-13			1913-14		
	Revenue.	Expenses	Net.	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.
July ...	$1,025	$698	$327	$1.113	$750	$363	$1,161	$814	$348
Aug. ...	1,119	726	393	1,211	776	435	1,219	831	388
Sept. ...	1,137	725	411	1,206	775	430	1,237	832	405
Oct. ...	1,175	749	425	1,311	827	484	1,294	870	424
Nov. ..	1,093	734	360	1,213	806	407	1,163	824	339
Dec. ..	1,046	720	326	1,159	799	360	1,100	800	299
Jan. ..	932	728	203	1,087	803	284	1,005	776	229
Feb. ...	964	710	254	1,015	756	260			
Mar. ...	1,051	746	305	1,085	803	283			
April ..	974	717	257	1,068	806	263			
May ...	1,030	735	295	1,154	834	321			
June ...	1,075	737	339	1,140	803	337			
Totals.	$12,605	$8,718	$3,888	$13,787	$9,554	$4,233			

IRON AND STEEL.

WESTERN IRON AND STEEL.

It is practically impossible to write a review of the Chicago market for April, for the simple reason that there has been no market. There has not been enough activity in the trade to afford material for discussion. The oldest observers of this market cannot account for present conditions, nor express any definite opinion regarding the future. The chief trouble is a lack of any good reason for the depression.

Crop prospects never were better at this season. The whole country is well supplied with moisture, without any complaint of wet weather. Winter wheat came through in good condition and prospects are almost perfect. The farmers are in good shape financially. There is no complaint of business stress anywhere. Collections are slow but this does not create any strain in credit conditions. There is no Balkan War hanging over the world. Our Mexican affair is a tempest in a teapot and does not affect the business world as much as the trouble in Ireland. There is no physical reason for trade to be so dull, but this does not relieve the complaint that business in general, and the iron and steel business in particular, is as dull as it was in the months following the panic of 1907.

The banks think it is a result of the railroads staying out of the market and curtailing their expenses at every angle. They figure that this goes around in a circle and affects practically every industry in the country; and reacts again for another and another round of the circle. Other business men begin to "talk politics." In this part of the country only a minority of business men belong to the party now in control at Washington, and this fact, regardless of party names, may be a considerable element in creating a lack of confidence.

We have reached this condition without any panic or excitement, or accumulation of stocks, and if business would only begin picking up it would gain rapidly, but everybody is waiting for somebody else to start.

Pig Iron Very Quiet.

The market for pig iron is extremely quiet. Occasional sales of small lots are made, but the movement is confined almost entirely to shipments on contracts made three months ago.

Railroad Buying Very Light.

The railroads are buying track supplies very sparingly, and only small lots of rails to cover urgent needs. There are orders pending for 5,000 or 6,000 cars for western roads, but the general tonnage of railroad purchases is very small.

Structural Mills Running 50 Per Cent.

Prospects are fairly good in Chicago for structural material, notwithstanding the overbuilt condition of the city in office structures. A new city pier will require a round tonnage and railroad terminal work and other requirements will furnish specifications for the mills. The miscellaneous country demand is better than might be expected, and the mills are running about 50 per cent. on plates and shapes.

Best Reports in the Bar Trade.

The demand for concrete work has given the bar trade a better movement than is apparent in any other branch of the steel industry. Low prices have encouraged the use of soft steel bars in concrete re-enforcement, and the leading mills seem to have made inroads into the trade of the hard steel mills. The independent mills which roll rail carbon bars have had the advantage in the past in the concrete trade, because they could make quicker deliveries and handle mixed specifications in small shipments to better advantage than the soft steel continuous mills. The soft steel interests, however, have been going after this trade more vigorously. The falling off in specifications from the implement trade and other large users of soft steel has made it possible for the large mills to give quick deliveries.

Reports are more encouraging in the agricultural line. The late spring trade of the implement manufacturers is cleaning up their stocks of finished goods, and they will begin next fall with light stocks and normal requirements for steel.

The larger bar mills in this district are reported running at about 75 per cent. The smaller independent mills are not faring so well, and the bar iron mills are waiting patiently for the railroads to resume buying.

PRICE CHANGES.

Price changes in merchant bars, structural shapes, plates, wire nails merchant pipe, sheets and tin plates are given below, with dates, from March, 1912. These are the commodities used in compiling our **composite finished steel.** In some cases the dates named are those upon which prominent producers announced price changes, but more frequently dates are merely those upon which our quotations were changed.

1912—			
Mar. 20	Shapes	1.10	to 1.12½
" 21	Shapes	1.12½	to 1.15
" 21	Plates	1.10	to 1.12½
April 1	Plates	1.12½	to 1.15
" 9	Sheets	1.80	to 1.85
" 10	Bars	1.10	to 1.15
" 10	Plates	1.15	to 1.20
" 10	Shapes	1.15	to 1.20
" 22	Sheets	1.85	to 1.90
" 24	Bars	1.15	to 1.20
" 24	Plates	1.20	to 1.25
" 24	Shapes	1.20	to 1.25
May 7	Tin plates	3.30	to 3.40
June 1	Pipe	81%	to 80%
" 26	Bars	1.20	to 1.25
" 26	Shapes	1.25	to 1.30
" 26	Plates	1.25	to 1.30
July 1	Sheets	1.90	to 1.95
" 9	Tin plates	3.40	to 3.50
" 22	Wire nails	1.60	to 1.65
" 24	Sheets	1.95	to 2.00
" 25	Pipe	80%	to 79%
Aug. 1	Bars	1.25	to 1.30
" 1	Plates	1.30	to 1.35
" 1	Shapes	1.30	to 1.35
" 13	Sheets	2.00	to 2.05
" 20	Plates	1.35	to 1.40
" 20	Shapes	1.35	to 1.40
" 26	Wire nails	1.65	to 1.70
Sept. 4	Tin plate	3.50	to 3.60
" 4	Sheets	2.05	to 2.10
" 10	Sheets	2.05	to 2.10
" 11	Sheets	2.10	to 2.15
" 26	Bars	1.30	to 1.35
Oct. 8	Plates	1.40	to 1.45
" 8	Shapes	1.40	to 1.50
" 9	Bars	1.35	to 1.40
" 10	Plates	1.45	to 1.50
" 10	Shapes	1.45	to 1.50
" 17	Sheets	2.15	to 2.25
Dec. 10	Wire nails	1.70	to 1.75
1913—			
Jan. 2	Pipe	79%	to 80%
" 14	Sheets	2.25	to 2.35
Feb. 1	Plates	1.50	to 1.45
" 1	Shapes	1.50	to 1.45
Mar. 24	Wire nails	1.75	to 1.80
April 14	Pipe	80%	to 79½%
May 27	Pipe	79½%	to 79%
1913—			
June 2	Wire nails	1.80	to 1.75
" 11	Sheets	2.35	to 2.30
" 18	Sheets	2.30	to 2.25
July 1	Wire nails	1.75	to 1.70
Aug. 9	Pipe (⅜-3-in.)	79%	to 80%
" 12	Wire nails	1.70	to 1.65
" 21	Sheets	2.25	to 2.15
" 27	Plates	1.45	to 140
Sept. 1	Shapes	1.45	to 1.40
" 22	Sheets	2.15	to 2.05
Oct. 2	Tin plates	3.60	to 3.50
" 3	Wire nails	1.65	to 1.60
" 16	Plates	1.40	to 1.35
" 21	Plates	1.35	to 1.30
" 23	Shapes	1.40	to 1.35
" 24	Sheets	2.05	to 2.00
" 27	Pipe	2½%	extra discount
" 28	Bars	1.40	to 1.35
Nov. 3	Tin plate	3.50	to 3.40
" 7	Bars	1.35	to 1.30
" 17	Sheets	2.00	to 1.95
" 25	Bars	1.30	to 1.25
" 25	Plates	1.30	to 1.25
" 25	Shapes	1.35	to 1.30
" 28	Wire nails	1.60	to 1.55
Dec. 2	Sheets	1.95	to 1.90
" 3	Shapes	1.30	to 1.25
" 4	Plates	1.25	to 1.20
" 11	Bars	1.25	to 1.20
" 22	Shapes	1.25	to 1.20
" 31	Sheets	1.90	to 1.80
1914—			
Jan. 6	Wire nails	1.55	to 1.50
" 7	Sheets	1.80	to 1.85
" 13	Wire nails	1.50	to 1.55
" 23	Sheets	1.85	to 1.90
" 30	Sheets	1.90	to 1.95
Feb. 2	Pipe	80%	to 79½%
" 2	Wire nails	1.55	to 1.60
" 4	Shapes	1.20	to 1.25
Mar. 9	Shapes	1.25	to 1.20
" 20	Plates	1.20	to 1.15
April 1	Bars	1.20	to 1.15
" 8	Sheets	1.95	to 1.90
" 17	Shapes	1.20	to 1.15
" 20	Pipe	79½%	to 80%
" 27	Sheets	1.90	to 1.85
" 29	Tin plates	3.40	to 3.30

COMPOSITE STEEL.

Computation for May 1, 1914:

Pounds	Group.	Price.	Extension.
2½	Bars	1.15	2.875
1½	Plates	1.15	1.725
1½	Shapes	1.15	1.725
1½	Pipe (¾-3)	1.95	2.925
1½	Wire nails	1.60	2.400
1	Sheets (28 bl.)	1.85	1.850
½	Tin plates	3.30	1.650
10 pounds			15.150

One pound 1.5150

(Averaged from daily quotations.)

	1910.	1911.	1912.	1913.	1914.
Jan...	1.8625	1.7415	1.5123	1.7737	1.5394
Feb..	1.8475	1.7520	1.4878	1.7625	1.5794
Mar..	1.8475	1.7590	1.4790	1.7646	1.5638
April.	1.8400	1.7600	1.5206	1.774[a]	1.5337
May..	1.8325	1.7510	1.5590	1.7786	.....
June .	1.7955	1.6817	1.5794	1.7719	.....
July..	1.7755	1.6701	1.6188	1.7600	.....
Aug..	1.7550	1.6394	1.6784	1.7400	.....
Sept.	1.7470	1.6090	1.7086	1.7093	.....
Oct...	1.7350	1.5461	1.7588	1.6779	.....
Nov..	1.7305	1.4930	1.7750	1.6203	.....
Dec..	1.7380	1.4812	1.7789	1.5558	.....
Year.	1.7922	1.6570	1.6214	1.7241	.....

SCRAP IRON & STEEL PRICES.

	Melting Steel. Pitts.	Bundled Sheet. Pitts.	No. 1 R.R. Wrought. Pitts.	No. 1 Cast. Pitts.	No. 1 Steel. Phila.	Heavy Melt'g. Ch'go.
1912—						
Aug.	13.60	12.25	14.15	13.35	14.25	12.10
Sep.	14.10	12.25	14.50	13.40	15.25	12.50
Oct.	15.75	12.95	15.80	14.05	15.75	14.00
Nov.	15.35	13.12	16.00	15.00	15.30	13.80
Dec.	15.10	13.15	15.75	15.10	14.75	13.40
Year	13.76	11.92	14.16	13.28	13.82	12.30
1913—						
Jan.	15.00	13.10	15.35	14.65	14.50	12.75
Feb.	14.35	12.00	15.35	14.65	13.25	12.65
Mar.	14.35	11.60	15.35	14.60	13.60	12.50
Apr.	14.25	10.50	15.50	14.50	13.75	12.60
May	13.50	10.00	15.00	14.25	12.25	11.50
June	13.20	9.25	14.25	13.50	11.50	10.75
July	12.50	8.75	13.35	12.30	11.15	10.60
Aug.	12.40	8.25	13.25	12.50	11.85	10.75
Sep.	12.60	8.00	13.00	12.50	12.25	10.60
Oct.	12.25	7.40	13.00	12.40	11.20	10.35
Nov.	11.40	6.75	11.85	12.00	10.30	10.25
Dec.	11.00	6.40	11.65	11.60	9.75	9.25
Year	13.07	9.33	13.91	13.29	12.12	11.21
1914—						
Jan.	11.25	7.00	12.20	12.00	10.50	9.25
Feb.	12.00	8.25	12.80	12.50	11.50	10.70
Mar.	12.25	9.00	12.85	12.40	11.50	10.50
Apr.	12.25	9.00	12.00	12.15	10.80	10.00

COMPOSITE PIG IRON.

Computation for May 1, 1914:

One ton Bessemer, valley	$14.00
Two tons basic, valley (13.00)	26.00
One ton No. 2 foundry, valley	13.25
One ton No. 2 foundry, Philadelphia	15.00
One ton No. 2X foundry, Buffalo	13.75
One ton No. 2 foundry, Cleveland	14.25
One ton No. 2 foundry, Chicago	14.75
Two tons No. 2 Southern foundry Cincinnati (13.75)	27.50
Total, ten tons	$138.50

One ton $13.850

Averaged from daily quotations:

	1910.	1911.	1912.	1913.	1914.
Jan...	17.598	14.375	13.420	17.391	13.492
Feb..	17.215	14.340	13.427	17.140	13.721
Mar..	16.702	14.425	13.581	16.775	13.843
April	16.315	14.375	13.779	16.36[a]	13.850
May.	15.750	14.242	13.917	15.682	.....
June .	15.320	14.032	14.005	14.968	.....
July .	15.131	13.926	14.288	14.578	.....
Aug..	14.727	13.874	14.669	14.565	.....
Sep...	14.612	13.819	15.386	14.692	.....
Oct...	14.435	13.692	16.706	14.737	.....
Nov..	14.415	13.532	17.226	14.282	.....
Dec..	14.408	13.430	17.475	13.838	.....
Year.	15.552	14.005	14.823	15.418	.....

UNFINISHED STEEL AND IRON BARS.

(Averaged from daily quotations.)

	Billets, Pitts.	Sheet bars. Pitts.	Rods, Pitts.	— Iron bars, deliv.— Phila.	Pitts.	Chi'go.
1912—						
Year	22.37	23.01	26.15	1.[illegible]8	1.38	1.32
1913—		*	Premiums for open-hearth.			
Jan.	28.40	29.40	30.00	1.68	1.65	1.60
Feb.	29.00	30.00	30.00	1.67	1.65	1.59
Mar.	29.00	30.00	30.00	1.65	1.65	1.58
Apr.	27.50	28.00	30.00	1.68	1.65	1.58
May	27.00	27.50	30.00	1.68	1.65	1.55
June	26.50	27.50	29.00	1.61	1.65	1.50
July	26.50	27.50	28.50	1.55	1.65	1.50
Aug.	25.75	26.50*	28.00	1.42	1.62	1.44
Sep.	24.00*	25.00*	27.37	1.33	1.59	1.37
Oct.	22.50	23.25	26.50	1.32	1.54	1.27
Nov.	20.50	21.50	26.00	1.30	1.45	1.15
Dec.	20.00	21.00	25.25	1.25	1.37	1.12
Year	25.55	26.43	28.39	1.51	1.59	1.45
1914—						
Jan.	20.00	20.25*	25.75	1.24	1.35	1.11
Feb.	21.00	22.00	26.00	1.28	1.35	1.14
Mar.	21.00	22.00	26.00	1.28	1.35	1.15
Apr.	20.75	21.75	25.50	1.23	1.31	1.14

* Premiums for Bessemer.

IRON AND STEEL IMPORTS AND EXPORTS.

VALUE OF TONNAGE AND NON-TONNAGE.

	1909.	1910.	1911.	1912.	1913.	1914.
January	$10,329,388	$14,513,394	$18,738,391	$18,451,914	$25,141,409	$16,706,836
February	10,947,159	13,949,082	18,690,792	21,801,570	24,089,871	16,520,260
March	13,873,746	17,253,503	22,591,991	24,474,799	27,201,197	.....
April	13,058,297	16,529,260	24,916,912	26,789,853	27,123,044	.....
May	12,964,367	17,658,042	20,616,795	28,050,247	26,718,970	.....
June	13,779,736	16,503,204	20,310,053	24,795,802	25,228,346	.....
July	11,866,772	16,108,102	17,454,772	24,917,952	24,170,604	.....
August	14,134,487	17,628,537	20,013,557	25,450,107	23,947,440	.....
September ...	12,966,908	16,776,178	19,875,308	23,286,040	22,831,082	.....
October	14,249,598	17,452,085	20,220,833	25,271,559	25,189,745	.....
November ...	14,434,690	18,594,806	20,823,061	26,406,425	20,142,141	.....
December	15,069,246	18,300,710	22,186,996	23,750,864	22,616,701	.....
Totals	$157,674,394	$201,271,903	$249,656,411	$289,128,420	$294,435,060	$33,227,096

EXPORTS OF TONNAGE LINES— Gross Tons.

	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January	102,630	74,353	70,109	118,681	152,362	151,575	249,493	118,770
February	87,912	81,773	84,837	110,224	150,919	204,969	241,888	121,206
March	112,787	96,681	94,519	124,980	216,360	218,219	257,053	.....
April	132.790	93,285	100,911	117,921	228,149	267,313	260,440	.....
May	91,543	64,041	109,808	135,306	178,589	307,656	242,188	.....
June	92.996	69,770	114,724	120,601	174,247	273,188	243,189	.....
July	122.240	86,796	100,850	127,578	162,855	272,778	237,159	.....
August	118,792	86,244	105,690	131,391	177,902	282,645	209,856	.....
September	114,819	76,732	97,641	119,155	181,150	248,613	213,058	.....
October	123.170	85,766	110,821	129,828	186,457	251,411	220,495	.....
November	116,309	71,130	116,105	155,138	187,554	233,342	175,961	.....
December	86,019	77,659	137,806	150,102	190,854	235,959	195,719	.....
Totals	1,301,979	961,242	1,243,567	1,540,895	2,187,724	2,948,466	2,759,232	239,976

IRON ORE IMPORTS.

	1911.	1912.	1913.	1914.
Jan. ..	102,600	154,118	175 463	101,804
Feb. .	94,820	129,693	188,734	112,574
Mar. ..	134,785	157,469	164,865	.....
April	133,900	178,502	174,162	.....
May .	217,467	194,482	191,860	.....
June ..	118,296	180,122	241,069	.....
July	200,845	185,677	272,017	.....
Aug. .	175,183	178,828	213,139	.....
Sept. .	184,456	180,571	295,424	.....
Oct. ..	172,459	202,125	274,433	.....
Nov. .	128,019	163,017	179,727	.....
Dec. .	148,902	199,982	223,933	.....
Totals	1,811,732	2,104,576	2,594,826	214,378

IRON AND STEEL IMPORTS.

	1910.	1911.	1912.	1913.	1914.
Jan..	56,207	33,071	20,008	21,740	17,835
Feb..	43,613	20,812	11,622	25,505	14,309
Mar..	54,176	23,533	15,466	27,247	.....
April	47,698	22,392	12,481	25,743	.....
May.	42,569	23,347	15,949	28,572	.....
June	30,322	29,399	21,407	36,597	.....
July	41,933	15,782	17,882	39,694	.....
Aug..	36,879	10,944	20,571	18,740	.....
Sep..	30,961	14,039	18,740	19,941	.....
Oct..	31,455	21.035	25,559	20,825	.....
Nov..	40,585	13,880	24,154	25,809	.....
Dec..	31,575	19,665	21,231	26,453	.....
Total	487,973	256,903	225.072	317,244	32,144

COPPER.

COPPER IN APRIL.

The market opened in April with the producers following up their advantage, brought on by the strong foreign advices and the advance in Standard due to the covering of bears, and on April 3rd they advanced their price ⅛c to 14¾ on a fair amount of foreign buying, but comparatively very little American buying. The producers' statement on April 8th showed that the production for March had been the highest on record, but it also showed a substantial increase in the deliveries to American consumers, and as a result a decrease in stocks of about 9,000,000 lbs. The American deliveries of 76,595,471 lbs. were so plainly in excess of what was known to be the actual consumption, that the statistics failed to create confidence, and within a week a sharp decline in the foreign market took place, followed by foreign fortnightly statistics April 16th showing an increase in foreign visible stocks of 1,070 tons. Naturally this was unsettling to our consumers, as the mainstay of the market had been the good foreign demand and decreasing stocks in Europe. To tempt buyers, our producers lowered their price one quarter of a cent to 14½, but this failed to bring in any business. The Mexican developments caused the closing down of the copper mines in that country, which would eliminate about 12,000,000 lbs. per month, but this also failed to stimulate buying, and the producers were obliged to further reduce their price to 14¼ during the closing week of the month. At this price consumers commenced purchasing, and about fifty million pounds was sold for May and June deliveries, but it was noticeable that foreign buyers showed very little interest, and there is not the slightest doubt that the large buying of the last two or three months has overstocked the foreign consumers. The month closed with producers asking 14⅜, but no business doing at the price. Although our export shipments in April fell off 11,000 tons as compared with March, it is to be noticed that the European visible supply instead of shrinking has increased 4,150 tons during April. An increase of about 10,000,000 lbs. in producers stocks is expected in the next statement to be issued on May 8th, but if this takes place it may have no effect whatever on the market, as the statistical position will still be a strong one. The consumption of copper in this country could hardly be expected to remain at the recent low rate, and should the improvement that seems to have begun be continued, the copper market will be in a very sound position, with always the prospect of an improvement in price should there be a return to general confidence in business.

COPPER PRICES IN APRIL.

	— NEW YORK —			— LONDON —	
				Standard	Best
Day.	Lake.	Electrolytic.	Casting.	(Prompt)	Selected.
	Cts.	Cts.	Cts.	£ s d	£ s d
1.	14.81¼	14.50	14.30	65 12 6	69 15 0
2.	14.81¼	14.50	14.30	65 17 6	70 0 0
3.	14.81¼	14.55	14.35	65 17 6	70 0 0
4.	.....	.....	.....	.....	.....
5.	.....	.....	.....	.....	.....
6.	14.81¼	14.55	14.35	65 15 0	70 0 0
7.	14.81¼	14.50	14.30	65 15 0	70 0 0
8.	14.81¼	14.50	14.35	65 16 3	70 0 0
9.	14.81¼	14.50	14.35	65 13 9	70 5 0
10.	.....	.....	.....	.....	.....
11.	.....	.....	.....	.....	.....
12.	.....	.....	.....	.....	.....
13.	14.81¼	14.50	14.30	.....	.....
14.	14.75	14.30	14.15	64 5 0	69 10 0
15.	14.75	14.31¼	14.15	64 15 0	69 15 0
16.	14.75	14.31¼	14.15	64 16 3	69 15 0
17.	14.75	14.31¼	14.15	64 13 9	69 10 0
18.	.....	.....	.....	.....	.....
19.	.....	.....	.....	.....	.....
20.	14.62½	14.27½	14.15	64 7 6	69 5 0
21.	14.62½	14.25	14.10	64 6 3	69 0 0
22.	14.62½	14.25	14.10	64 6 3	69 0 0
23.	14.50	14.18¾	14.05	64 15 0	68 10 0
24.	14.43¾	14.06¼	13.93¾	63 5 0	68 5 0
25.	.....	.....	.....	.....	.....
26.	.....	.....	.....	.....	.....
27.	14.50	14.15	14.05	64 3 9	68 15 0
28.	14.50	14.15	14.05	63 15 0	68 5 0
29.	14.50	14.20	14.10	64 2 6	68 10 0
30.	14.50	14.20	14.10	64 0 0	68 0 0
High	15.00	14.60	14.40	66 2 6	70 5 0
Low	14.375	14.00	13.875	63 2 6	68 0 0
Av'ge	14.682	14.339	14.183	64 14 11	69 6 0

Utah Copper Production.

Salt Lake.—Utah Copper made a new high record of production in April. Exact figures are not obtainable but are understood to be more than 13,000,000 pounds of copper.

COPPER.

LAKE COPPER PRICES.

Average monthly prices of Lake Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.93	12.75	14.37½	16.89	14.76½
Feb.	13.76½	12.73	14.38½	15.37½	14.98
Mar.	13.71½	12.56	14.87	14.96	14.72
April	13.31	12.41	15.98	15.55	14.68
May	12.98	12.32	16.27	15.73	.....
June	12.83½	12.63	17.43	15.08	.....
July	12.62½	12.72	17.37	14.77	.....
Aug.	12.78½	12.70	17.61	15.79	.....
Sept.	12.72	12.57	17.69	16.72	.....
Oct.	12.90	12.47½	17.69	16.81	.....
Nov.	13.00½	12.84	17.66	15.90	.....
Dec.	12.92	13.79	17.62½	14.82	.....
Av..	13.12	12.71	16.58	15.70	.....

ELECTROLYTIC COPPER PRICES.

Average monthly prices of Electrolytic Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.68	12.53	14.27	16.75½	14.45
Feb.	13.51	12.48	14.26	15.27	14.67
Mar.	13.42½	12.31	14.78	14.92½	14.33½
April	12.93	12.15½	15.85	15.48	14.34
May	12.67	12.13	16.16	15.63	.....
June	12.59	12.55	17.29	14.85	.....
July	12.36½	12.62½	17.35	14.57	.....
Aug.	12.56	12.57½	17.60	15.68	.....
Sept.	12.49	12.39	17.67	16.55	.....
Oct.	12.77½	12.36	17.60	16.54	.....
Nov.	12.87½	12.77	17.49	15.47	.....
Dec.	12.73½	13.71	17.50½	14.47	.....
Av..	12.88	12.55	16.48	15.52	.....

CASTING COPPER PRICES.

Average monthly price of Casting Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.60	12.39	14.02	16.57	14.27½
Feb.	13.41	12.33	14.02	15.14	14.48
Mar.	13.31	12.20	14.53	14.76	14.18
April	12.87	12.07	15.72½	15.33	14.18
May	12.62	12.08	16.01	15.45½	.....
June	12.52	12.40	17.08	14.72	.....
July	12.30	12.49½	17.09	14.40½	.....
Aug.	12.48	12.42	17.35	15.50	.....
Sept.	12.46	12.23	17.51	16.37½	.....
Oct.	12.70	12.21	17.44	16.33	.....
Nov.	12.82	12.61	17.34	15.19	.....
Dec.	12.64	13.56½	17.34	14.22	.....
Av..	12.81	12.42	16.29	15.33	.....

VISIBLE SUPPLY OF COPPER.

Visible supply of copper at the end of each month based on the returns of the Copper Producers' Association and H. R. Merton & Company.

1910—	Stocks in American Producers' hands.	European Visible Supply.	Combined Visible Supply.
Jan. ..	98,463,339	248,209,920	346,673,259
Feb. ..	107,187,992	254,139,200	361,327,192
Mar. ..	123,824,874	249,607,680	373,432,554
April ..	141,984,159	246,863,680	388,847,839
May ..	160,425,973	239,265,600	399,691,573
June ..	168,386,017	232,863,680	401,249,697
July ..	170,640,678	222,295,360	392,936,038
Aug. ..	168,881,245	218,413,440	387,294,685
Sept. ..	148,793,714	210,472,640	359,266,354
Oct. ..	139,261,914	198,065,280	337,327,194
Nov. ..	130,389,069	193,200,000	323,589,069
Dec. ..	122,030,195	187,705,280	309,735,475
1911—			
Jan. ..	142,439,490	*236,976,320	379,415,810
Feb. ..	156,637,770	226,210,880	382,848,650
Mar. ..	162,007,934	223,030,080	385,038,014
April ..	165,555,908	212,280,320	377,836,228
May ..	165,995,932	202,413,120	368,409,052
June ..	157,434,164	195,937,280	353,371,444
July ..	137,738,858	192,584,000	330,322,858
Aug. ..	133,441,501	191,215,360	324,656,861
Sept. ..	140,894,856	191,945,600	332,840,456
Oct. ..	134,997,642	176,816,640	311,814,282
Nov. ..	111,785,188	164,151,680	275,936,868
Dec. ..	89,454,695	158,329,920	247,784,615
1912—			
Jan. ..	66,280,643	153,820,800	220,101,443
Feb. ..	62,939,988	141,135,680	204,075,668
Mar. ..	62,367,557	136,808,000	199,175,557
April ..	65,066,029	134,155,840	199,221,869
May ..	49,615,643	117,797,120	167,412,763
June ..	44,335,004	107,817,920	152,152,924
July ..	50,280,421	113,290,240	163,570,661
Aug. ..	46,701,374	113,783,040	160,484,414
Sept. ..	63,065,587	107,403,520	170,469,107
Oct. ..	76,744,964	103,801,600	180,546,564
Nov. ..	86,164,059	96,938,240	183,102,299
Dec. ..	105,312,582	96,857,600	202,170,182
1913—			
Jan. ..	123,198,332	96,546,240	219,744,572
Feb. ..	122,302,198	100,067,520	222,369,718
Mar. ..	104,269,270	†100,965,760	205,235,030
April ..	75,549,108	98,374,720	173,923,828
May ..	67,474,225	90,018,880	157,493,105
June ..	52,904,606	85,559,040	138,463,646
July ..	53,594,945	79,804,480	133,399,425
Aug. ..	38,314,037	76,260,800	114,574,837
Sept. ..	29,793,094	62,314,560	92,107,654
Oct. ..	32,566,382	57,854,480	90,420,862
Nov. ..	47,929,429	59,935,680	107,865,109
Dec. ..	91,438,867	66,124,800	157,563,667
1914—			
Jan. ..	87,296,685	58,114,560	145,411,245
Feb. ..	78,371,852	60,374,720	138,746,572
Mar. ..	64,609,319	58,528,960	123,138,279

* Hamburg and Rotterdam stocks included.
† Bremen stocks included.

COPPER.

THE WONDERFUL DEVELOPMENT IN THE BRASS INDUSTRY.

An Interesting Review by the Worlds Largest Copper Consumer.

Charles F. Brooker, president of the American Brass Company, is quoted by the Boston News Bureau as saying:

"As an illustration of the growth of the brass business it may be pointed out that the Coe Brass Manufacturing Company at Torrington, Conn., had an output in 1864, its first year, of finished material of about 75,000 pounds per month, or 900,000 pounds for the year, and in 1869 it ran up to 100,000 pounds per month, or 1,200,000 pounds for the year. Forty-three years later, 1912, the same mill turned out over 50,000,000 pounds of finished material, or four and one-quarter times each month as much as the yearly product of 1869.

"The consumption of copper was fairly estimated as having been 25,000,000 pounds in this country in 1864; in 1870 it was reckoned at 30,000,000 pounds; and in the year 1913 the domestic deliveries in the United States aggregated 767,000,000 pounds; or 64,000,000 pounds per month.

"I remember being told in my early days that we must look to Baltimore alone, in this country, and then to England for our supply of copper. In fact, one of the first purchases made by me was from John Bibby & Sons of Liverpool, and Dr. Kener of Baltimore was acknowledged to be the only real expert then in the art of copper producing in this country.

"Buying copper in the early days was a serious matter, and it was the practice of the Waterbury mills about 1850, or just before, to appoint a committee to go to Baltimore to secure the metal. It is said that a purchase of half a million pounds was looked upon as an enormous transaction, which supplied demands of all mills in the town for several months. On one of these occasions, John P. Elton, grandfather of the present treasurer of The American Brass Company, and Lyman W. Coe, were sent as a 'purchasing committee' to Baltimore. This was before the railroad reached Waterbury.

"As they were taking the stage for New Haven to get the boat for New York, they were handed a letter by Israel Holmes, one of the fathers of the business and a well-known wit, a note of warning, beginning as follows:

"'Now Lyman C.
And John P. E.,
Mind what you are about;
If not, those chaps in Baltimore
Will cut your eye-teeth out.'

"If we look for the millenium in this business of ours, we must look backward. In 1853 the 13 mills then in existence had a real 'pool' or 'association', joined in a common price-list with all their names boldly attached, and their business absolutely 'pooled,' paying three cents per pound into the 'pool' for any excess of product over their agreed share, receiving the same for any deficiency. This 'pool' was largely managed by George P. Cowles. Thomas Wallace was active in this, and is the only living member of that arrangement.

"From any information I can obtain, this was the first 'pool' or 'agreement' in this country looking toward a maintenance of equitable prices, to give stability to the business in the interest of both the mills and the consumers. This practice obtained for a number of years, but finally went out of existence altogether. As we all know, for a long time no such arrangements have been recognized under existing law, and none have existed. Open competition is the present order.

"Copper was then about 24 cents per pound, and zinc or spelter about 5½ cents.

"Prices for manufactured material were as follows: in quantities of 2,500 pounds within six months:

	Cents.
Sheet brass up to 14 inches wide and to No. 30 gauge	35
Brass wire to No. 20 gauge	36
Copper wire	46

Terms: Six months' credit, or 5 per cent discount for cash.

"The mill received about 17 cents per pound over the cost of mixture for brass and brass wire, and 22 cents per pound for converting copper into wire.

"In 1864 the price of copper was 46.28c per pound and spelter 14.08c, the prices re-

BRANDS OF COPPER.

United States.

LAKE.

	Refined at:	Branded.
Adventure	Hancock, Michigan.	Adv. C. Co.
Atlantic	Houghton, Michigan.	A.
Calumet & Hecla	Hubbell, Michigan.	C. & H. M. Co.
Calumet & Hecla	Buffalo, N. Y.	C. & H. M. Co.
Calumet & Hecla	Buffalo, N. Y.	B. L.
Centennial	Hancock, Michigan.	C. C. M. Co.
Copper Range	Houghton, Michigan.	C. R.
Franklin	Hancock, Michigan.	F. M. Co.
Isle Royale	Dollar Bay, Michigan.	I. R. C. Co
Mass.	Hancock, Michigan.	Mass.
Michigan	Houghton, Michigan.	M. C.
Mohawk	Houghton, Michigan.	M. M.
Osceola	Dollar Bay, Michigan.	T. O.
Quincy	Hancock, Michigan.	Q. M. Co.
Tamarack	Dollar Bay, Michigan.	T. O.
Victoria	Hubbell, Michigan.	V. C.
Winona	Hubbell, Michigan.	W. A.
Wolverine	Houghton, Michigan.	W.

ELECTROLYTIC.

	Refined at:	Branded.
American S. & R. Co.	Perth Amboy, N. J.	P. A.
Balbach S. & R. Co.	Newark, N. J.	Cathodes only
Baltimore Copper Works	Baltimore, Md.	B. E. R.
Boston & Montana Co.	Great Falls Mont.	B. & M.
Chicago Copper Ref. Co.	Blue Island, Ill.	C. C. R.
Copper Queen	Laurel Hill L. I.	C * Q
Miami	Laurel Hill L. I.	A. L. S.
Nichols Copper Co.	Laurel Hill L. I.	L. N. S.
Orford Copper Co.	Chrome, N. J.	O. E. C.
Raritan Copper Works	Perth Amboy, N. J.	N. E. C.
U. S. Metals Ref. Co.	Chrome, N. J.	D. R. W.
United Metals Selling Co.	Laurel Hill L. I.	R. M. C.

CASTING.

	Refined at:	Branded.
Balbach S. & R. Co.	Newark, N. J.	N. B. C.
Boston & Montana Co.	Great Falls Mont.	M. A.
Chicago Copper Ref. Co.	Blue Island, Ill.	C. C. R.
Nichols Copper Co.	Laurel Hill L. I.	C. N. C.
Phelps Dodge & Co.	Laurel Hill L. I.	P. D. Co.
U. S. Metals Ref. Co.	Chrome, N. J.	D. S.
Tottenville Copper Co.	Tottenville N. Y.	C. T. C.

COPPER—TIN

ceived for the manufactured product being as follows:

Sheet brass .....63.50c per lb.
Brass wire .....64c per lb.
Copper wire .....74c per lb.

"The mill receiving a differential for brass sheets of 27.95c per pound, 28.45c for brass wire, and 27.72c for converting copper into wire.

"Comparison with prices to-day is interesting, and shows how improvements in methods, increased volume and good business practice, have worked out. We are now about on a parity with Europe in many of our selling prices, while paying same for copper, 15 per cent more for zinc, and nearly, if not twice as much, for labor.

"To-day with copper at 15 cents, zinc at 6 cents, we get for

Cents per lb.

Brass, in sheets, base sizes.....14⅜
Brass wire, base sizes 14⅛
Copper wire, base sizes.....16
Cash in 30 days, or ½ per cent off for cash.

"The mill now gets 2⅞ cents to 2⅜ cents over the mixture for brass and wire, and one cent or less for converting copper bars into wire.

"In the light of recent events it seems likely a 'fairy-tale' to say that this great industry was built up on conditions where competitors could unite in buying their raw material as well as in selling their products—eliminating competition at both ends to the advantage of every one concerned."

COPPER EXPORTS.

The following table shows the exports of copper for the past four years, in tons:

	1914.	1913.	1912.	1911.
Jan.	36,018	25,026	31,229	29,357
Feb.	34,634	26,792	31,894	19,192
Mar.	46,504	42,428	27,074	21,600
April	34,787	33,274	22,591	27,466
May		38,601	32,984	27,670
June		28,015	25,639	30,489
July		29,596	26,761	36,659
Aug.		35,072	23,526	29,018
Sept.		34,356	25,572	26,170
Oct.		29,239	25,020	32,555
Nov.		29,758	19,171	26,600
Dec.		20,653	22,474	33,525
Total		382,810	327,965	336,801

TIN IN APRIL.

This metal was subject to heavy declines during April and at times the market approached semi-panic conditions, brought about by the depressing tactics of the London operators which led to violent liquidation. The market has been in a technically weak position throughout the month for the reason that there was no concentrated bull party to oppose the bears. During the decline in February when the large bull account was being liquidated, the metal seemed to have been taken on by smaller buyers generally, on the belief that it was very cheap, but these interests have shown great demoralization during the past month and have been throwing over their holdings. The reasons for the decline have created a good deal of discussion. It has certainly had little to do with the statistical position of tin or with the American consumption. The statistics on May first showed a decrease in the visible of some 1500 tons in April, leaving a visible supply on May 1st of 15,447 tons, which is high as compared with a year ago, but is only 1,000 tons greater than on May 1st, 1911, when the price of tin was 42.75. It is interesting to note that during 1911 the visible supply was only twice below 15,000 tons, and

WATERBURY AVERAGES.

The Waterbury averages for the month of April, 1914, were as follows:

Lake Ingot Copper 14.87½
Electrolytic Ingot Copper.. 14.37½
Brass Mill Spelter 5.50

	Copper — Lake — 1913.	1914.	Copper — Electro 1914.	Spelter 1913.	Spelter 1914.
Jan...	17.00	14.75	.....	7.56	5.54
Feb...	15.50	15.12½	.....	6.81	5.70
Mar...	15.12½	15.00	14.50	6.56	5.59
Apr...	15.75	14.87½	14.37½	6.08	5.50
May..	15.87½	.....	.....	5.77	....
June .	15.37½	.....	.....	5.50	....
July..	14.75	.....	.....	5.61	....
Aug...	15.62½	.....	.....	5.99	....
Sep...	16.87½	.....	....	6.13	....
Oct...	16.87½	.....	.....	5.74	....
Nov..	16.25	.....	.....	5.50	
Dec..	15.00	.....	.....	5.44	....
Year.	15.83	.....	.....	6.06½	....

TIN.

MONTHLY TIN STATISTICS.

Compiled by New York Metal Exchange.

	April 1914.	Mar. 1914.	April 1913.
Straits shipments			
To Gt. Britain..	3,175	2,350	2,984
" Continent ...	818	1,040	558
" U. S.	975	735	877
Total from Straits	4,968	4,125	4,419
Australian shipments:			
To Gt. Britain..	230	150	250
" U. S.	nil	nil	nil
Total Australian	230	150	250
Consumption:			
London deliveries	1,286	1,401	1,002
Holland deliveries	1,399	1,509	1,584
United States*...	4,300	4,450	3,450
Total	6,985	7,260	6,036
Stocks at close of month:			
In London	3,622	3,604	1,159
" " (Stand)	2,920	2,483	†
" Holland	976	2,105	448
" United States*	2,538	1,997	2,422
Total	10,056	10,189	4,029
Afloat at close of month:			
To London	3,554	2,640	3,493
" Holland	183	183	183
" United States*	1,654	3,977	2,117
Total	5,391	6,800	5,793
	1914. Apr. 30,	1914. Mar. 31,	1913. Apr. 30,
Total visible supply	15,447	16,989	9,822

* Exclusive of Pacific ports.
† Not reported.

TIN AND SILVER. (Monthly Averages.)

	New York — Tin			New York — Silver		
	1912.	1913.	1914.	1912.	1913.	1914.
Jan.	43.24	50.45	37.74	56.22	62.93	57.56
Feb.	43.46	48.73	39.93	59.04	61 64	57.50½
Mar.	42.86	46.88	38.08	58.37	57.87	58.07
Apr.	44.02	49.12	36.10	59.23	59.49	58.52
May	46.12	49.14	.....	60.88	60.36	.....
June	47.77	44.93	.....	61.29	58.99	.....
July	44.75	40.39	.....	60.66	58.72	.....
Aug.	45.87	41.72	.....	61.61	59.29	.....
Sep.	49.18	42.47	.....	63 08	60.64	.....
Oct.	50.11	40.50	.....	63.47	60.79	.....
Nov.	49.90	39.81	....	62.79	58.99	.....
Dec.	49.90	37.64	.....	63.37	57.76	.....
Year	46.43	44.32	. .	60.83	59.79½	. . .

VISIBLE SUPPLIES.

Total visible supply of tin at the end of each month.

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	21,895	23,024	18,616	16,707	13,971	16,244
Feb.	20,746	21,288	17,260	14,996	12,304	17,308
Mar.	19,208	20,203	16,682	15,694	11,132	16,989
Apr.	18,825	17,932	14,441	11,893	9,822	15,447
May	19,208	18,998	15,938	14,345	13,710	.....
Jun.	18,208	15,700	16,605	12,920	11,101	.....
July	20,244	17,433	16,707	13,346	12,063	.....
Aug.	19,182	17,943	16,619	11,285	11,261	.....
Sep.	21,419	18,999	16,672	13,245	12,943	.....
Oct.	18,724	18,183	14,161	10,735	11,857	.....
Nov.	20,025	18,875	16,630	12,348	14,470	.....
Dec.	20,918	17,194	16,514	10,977	13,893	.....
Av.	19,883	18,815	16,404	13,207	12,377	.....

SHIPMENTS FROM THE STRAITS.

Monthly shipments of tin from the Straits Settlements to Europe and the United States, as per Powell's returns:

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	5,733	5,895	4,290	4,018	6,050	5,290
Feb.	4,033	4,147	4,290	5,260	4,660	6,520
Mar.	3,380	2,877	4,510	5,150	4,810	4,120
Apr.	4,904	4,025	3,140	4,290	4,400	4,930
May	5,184	4,965	4,310	5,760	6,160	.....
June	4,618	4,120	5,050	4,290	4,820	.....
July	5,644	5,040	4,660	4,580	4,770	.....
Aug.	4,702	5,700	4,680	5,210	6,030	.....
Sep.	5,081	4,220	5,150	5,430	5,160	.....
Oct.	3,801	4,480	4,350	4,450	5,020	.....
Nov.	5,510	4,840	5,070	5,600	5,560	.....
Dec.	5.835	4,270	5,970	4,980	5,110	.....
	58,425	54,579	55,470	59,018	62,550	
Av..	4,869	4,548	4,622	4,918	5,213	

CONSUMPTION IN THE UNITED STATES.

Monthly deliveries of tin in the United States exclusive of Pacific Coast.

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	3,200	3,500	3,200	3,700	3,700	3,600
Feb.	2,700	3,600	3,800	4,050	3,500	3,300
Mar.	3,900	4,000	5,100	4,000	5,900	4,450
Apr.	3,200	4,100	3,300	5,400	3,450	4,300
May	3,900	3,600	3,400	4,250	3,350	.....
June	3,200	5,000	2,900	2,850	3,800	.....
July	3,600	3,800	4,300	5,150	3,900	.....
Aug.	3,300	3,700	3,800	4,300	3,600	.....
Sep.	3,200	3,300	4,200	3,600	3,100	.....
Oct.	4,100	3,350	3,500	3,850	3,700	.....
Nov.	4,000	3,800	3,100	4,300	2,800	.....
Dec.	3,200	3,600	3,700	4,050	3,100	.....
	41,500	45,350	44,300	49,500	43,900	
Av..	3,458	3,779	3,692	4,125	3,658	

TIN.

that the average visible supply for the whole year was 16,404 tons, and the average price of tin 42.68. Despite the large stocks in 1911 the price in London did not go below £169 15s and at one time touched £233 and the average for the entire year was £192 7s 7d.

The last time that tin was quoted below £150 in London was in July 1910, when the visible supplies were more than 17,500 tons. Furthermore, a good deal of tin that now appears in the stocks of standard tin, was not in these years included in the statistics at all. On May 1st the visible supply was 800 tons less than it was in early February when the market was 7½c per pound higher than to-day; about a year ago the price was around £230, as compared with around £150 now.

As regards the consumption of the metal, the statistics for the first four months of the year show that Europe decreased 133 tons and America decreased 900 tons. There is every prospect, however, that on the first of July it will be shown that for the half year, America has used as much or more than last year, the reason being that our tinplate mills have been running better than any other like period in former years. Besides that, several new mills have come into operation. But for the falling off in the engineering trade, caused by the unsatisfactory railroad situation, the consumption of tin in America would have been larger than last year.

It has not been the consumption or its prospects that has caused such a sensational decline in the price of tin, although this has been given as a reason by the foreign bears. It also has been stated that a substantial increase in production has begun, to which the answer is "not proven." The real reason will be found in the fact that the metal is an intensely speculative commodity and that the manipulation lately has been all in the direction of frightening out holders and the producing interests, in order to establish a low basis on which to conduct another bull campaign such as we have so often seen in the past.

Opening at 37.80 the decline has been continuous during the month, closing at 34.35 with signs of considerable demoralization.

TIN PRICES IN APRIL.

	New York.	London prompts.	London C. I. F.
	Cts.	£ s d	£ s d
1	37.80	172 12 6	175 10 0
2	37.55	171 5 0	174 10 0
3	37.25	169 10 0	172 15 0
4	.....	.....	.....
5	.....	.....	.....
6	37.20	169 5 0	172 0 0
7	36.80	167 5 0	171 10 0
8	36.80	167 7 6	169 5 0
9	37.00	168 5 0	169 10 0
10	.....	.....	.....
11	.....	.....	.....
12	.....	.....	.....
13	37.00	.....	.....
14	36.50	166 0 0	170 7 6
15	36.12½	164 15 0	168 5 0
16	36.25	164 15 0	167 0 0
17	36.55	166 5 0	167 10 0
18	.....	.....	.....
19	.....	.....	.....
20	36.00	164 5 0	168 15 0
21	35.65	161 15 0	166 5 0
22	35.60	161 5 0	164 0 0
23	35.12½	159 10 0	163 10 0
24	34.35	155 10 0	160 0 0
25	.....	.....	.....
26	.....	.....	.....
27	34.80	158 5 0	157 15 0
28	34.65	157 0 0	160 5 0
29	34.75	157 15 0	159 10 0
30	34.35	156 15 0	159 5 0
High	37.80	173 5 0	175 10 0
Low	34.35	154 5 0	157 15 0
Average	36.10	163 19 3	166 17 5

COMPOSITE METAL PRICES.

Monthly averages.

	1910.	1911.	1912.	1913.	1914.
Jan.	**9.084**	8.908	9.778	10.987	9.105
Feb.	8.881	8.915	9.677	10.260	9.294
Mar.	8.778	8.797	9.886	10.024	9.026
April	8.568	8.795	10.277	10.198	8.844
May	8.413	8.795	10.468	10.163	.....
June	8.362	9.154	11.014	9.648	.....
July	**8.338**	9.100	11.043	9.398	.....
Aug.	8.479	9.188	11.092	10.925	.....
Sep.	8.569	8.928	11.575	10.350	.....
Oct.	8.747	8.990	11.596	10.029	.....
Nov.	8.888	9.306	11.372	9.590	.....
Dec.	8.881	9.675	11.219	9.053	.....
Year	8.665	9.046	10.750	9.977	.....

SPELTER—LEAD.

SPELTER IN APRIL.

Opening on April 1st at 5⅛ f.o.b. East St. Louis there was a dull market throughout the month, prices gradually softening to 4⅞ at the close.

Consumption has been very unsatisfactory caused by the reduced operations of the galvanizing and brass trades, and although production has been in a measure curtailed, the stocks held by producers are known to be very large, probably in excess of those of January 1st which the Government figures showed to be a record for recent years. That prices have not weakened more was caused by the financial power of producers to carry stocks, which if sold at present prices would entail a loss, and also through the refusal of the ore producers to follow the full extent of the decline in the metal, many of the smaller mines suspending their operations. With any substantial improvement in the consumption the metal is certain to work to better prices, because there is no question that the present market is unprofitable to all interests.

The sellers appreciate that there is only a small amount of business to be had at this time and knowing that it would be disastrous to engage in an active competition for it, have as it were by mutual consent allowed those who were most anxious for the business to take the bulk of the orders. There were times during April when a real lively competition would have forced prices down to 4.75 or even 4.62½ East St. Louis, but as it was the market did not go below 4.87½. We are publishing a chart in this issue showing the monthly price fluctuations of metals since the beginning of 1907 and an examination of this will show the extent of the decline in spelter which commenced a year ago last January.

SPELTER (Monthly Averages.)

	—New York—			—St. Louis—		
	1912.	1913.	1914.	1912.	1913.	1914.
Jan.	6.55	7.23	5.33	6.39½	7.04	5.14
Feb.	6.70	6.49	5.46	6.53	6.25	5.27
Mar.	6.93	6.29	5.35	6.74	6.08	5.15
Apr.	6.87	5.79	5.22	6.66	5.59	5.03
May	6.89	5.51	....	6.71	5 31	. ..
June	7.05	5.23½	....	6.85½	5.05	....
July	7.23	5.41	....	7.04	5.23	. ..
Aug.	7.13	5.80	....	6.94	5.64	....
Sep.	7.55	5.83	....	7.37	5.65	....
Oct.	7.61	5.47	....	7.39	5.27	..
Nov.	7.50	5.34	...	7.32	5.15	....
Dec.	7.36	5.22	...	7.19	5.03	. ..
Year	7.11	5.80	....	6.93	5.61	. ..

LEAD IN APRIL.

On the last day of March the Trust reduced their price $2 per ton to 3.80c New York. On April 27th they restored their price to 3.90c, probably on account of the Mexican situation having enforced the closing of their producing plants in that coun-

SPELTER AND LEAD PRICES IN APRIL.

	—— SPELTER ——			——— LEAD ———		
Day.	New York	St. Louis	London.	*New York.	St. Louis.	London
1.	5.32½	5.12½	21 12 6	3.80	3.65	18 0 0
2.	5.32½	5.12½	21 12 6	3.80	3.67½	18 2 6
3.	5.32½	5.12½	21 10 0	3.82½	3.67½	18 5 0
4.	....	....	.....	....	....	.....
5.	....	....	.....	....	....	.....
6.	5.32½	5.12½	21 10 0	3.82½	3.67½	18 2 6
7.	5.32½	5.12½	21 10 0	3.82½	3.67½	18 2 6
8.	5.30	5.11¼	21 10 0	3.82½	3.68¾	18 2 6
9.	5.30	5.11¼	21 10 0	3.82½	3.67½	18 0 0
10.	....	....	.....	....	....	.....
11.	....	....	.....	....	....	.....
12.	....	....	.....	....	....	.....
13.	5.30	5.10	.....	3.82½	3.67½	.....
14.	5.25	5.07½	21 10 0	3.82½	3.67½	18 0 0
15.	5.25	5.05	21 10 0	3.82½	3.67½	18 0 0
16.	5.25	5.05	21 12 6	3.80	3.67½	18 0 0
17.	5.22½	5.03¾	21 12 6	3.80	3.67½	18 2 6
18.	....	....	.....	....	....	.....
19.	....	....	.....	....	....	.....
20.	5.20	5.01¼	21 12 6	3.80	3.68¾	18 0 0
21.	5.20	5.01¼	21 15 0	3.82½	3.68¾	18 2 6
22.	5.20	5.00	21 15 0	3.82½	3.68¾	18 0 0
23.	5.15	4.97½	21 12 6	3.82½	3.68¾	18 0 0
24	5.10	4.92½	21 12 6	3.82½	3.70	18 2 6
25.	. ..	....	.....	....	....	.....
26.	....	....	.....	....	....	.....
27	5.10	4.90	21 12 6	3.92½	3.80	18 15 0
28.	5.05	4.87½	21 10 0	3.92½	3.78¾	19 0 0
29.	5.10	4.90	21 7 6	3.92½	3.78¾	19 0 0
30.	5.10	4.90	21 10 0	3.92½	3.78¾	18 15 0
High	5.32½	5.12½	21 15 0	3.95	3.80	19 0 0
Low	5.00	4.85	21 7 6	3.80	3.65	18 0 0
Av.	5.224	5.032	21 11 5	3.838	3.70	18 4 8

* New York lead price outside market.

LEAD.

try. This is all that can be said about prices.

Stocks are believed to be large and consumption considerably below normal or prices would not be lower than any time since 1898 with the exception of the panic of 1907-8 when the market dropped to 3½c only to advance within a year thereafter to 4.60.

The independent producers have not been competing very actively for orders and the business as a rule has been going to the sellers who were the most favorably situated for the deliveries required.

The London market advanced from £18 on April 1st to £19 on April 29th, but during the first week in May it has reacted to £18 5s.

LEAD (Monthly Averages.)

	—New York*—			—St. Louis—		
	1912.	1913.	1914.	1912	1913.	1914.
Jan.	4.44	4.35	4.11	4.34	4.20	3.99½
Feb.	4.04	4.35	4.06	3.99	4.20	3.95
Mar.	4.07	4.35	3.97	4.06	4.21	3.83
Apr.	4.20	4.40	3.82	4.14	4.25	3.70
May	4.20	4.36	. . .	4.09	4.22	
June	4.39½	4.35	....	4.31	4.21	. . .
July	4.73	4.37	....	4.60	4.25	....
Aug.	4.56½	4.63	....	4.46	4.56	....
Sep.	5.05	4.75	....	4.94	4.62	....
Oct.	5.10	4.45	....	4.91	4.31	....
Nov.	4.69	4.34	....	4.50	4.18	....
Dec.	4.36	4.06	....	4.19	3.94	. . .
Year	4.48½	4.40	....	4.38	4.26	. . .

* Trust price.

LEAD SMELTERS AND REFINERIES IN U. S.

The following list of lead smelters and refineries was compiled by C. E. Siebenthal, in connection with the statistical work of the U. S. Geological Survey.

Arizona:
- Mowry—Consolidated Mines, Smelter & Transportation Company.1

California:
- Keeler—Four Metals Mining & Smelting Company.
- Needles—Needles Mining & Smelting Company.2
- Selby—Selby Smelting & Lead Co.3 Refinery also.

Colorado:
- Denver—Globe plant, American Smelting & Refining Company.
- Durango—Durango plant, American Smelting & Refining Company.
- Leadville—Arkansas Valley plant, American Smelting & Refining Company.
- Pueblo—Pueblo plant, American Smelting & Refining Company.
- Salida—The Ohio & Colorado Smelting & Refining Company.

Idaho:
- Clayton—Red Bird Smelting Company.
- Enaville—North Fork Smelting & Mining Company.
- Ponderay—Idaho Smelting & Refining Company.
- Sea Foam—Greyhound Mining & Milling Company.
- Wardner—Bunker Hill & Sullivan Company (Malm dry chlorination process.) Under construction.

Illinois:
- Aurora—Aurora Metal Company.4
- Chicago—Goldsmith Bros. Smelting & Refining Company.4
- Chicago—Great Western Smelting & Refining Company.4
- Chicago—National plant, American Smelting & Refining Company. Refinery only.
- Collinsville—St. Louis Smelting & Refining Company.5 Refinery also.
- Federal—Federal Lead Company.3
- Granite City—Hoyt Metal Company.4

Indiana:
- East Chicago—International Lead Refining Company.6 Refinery only.
- East Chicago—United States Reduction Company.4
- Grasselli—United States Metals Refining Company.2 Refinery only. Betts electrolytic process.

Iowa:
- Dubuque—J. W. Watters.1

Kansas:
- Galena—Galena Smelting & Manufacturing Company.

Missouri:
- Desloge—Desloge Consolidated Lead Co.

Granby—Granby Mining & Smelting Co.
Herculaneum—St Joseph Lead Company.
Joplin—Picher Lead Company.
Valle Mines—Valle Mining Company.1
Webb City—Webb City Smelting & Manufacturing Company.

Montana:
Cooke—New World Smelter & Mining Company.
East Helena—East Helena plant, American Smelting & Refining Company.

Nebraska:
Omaha—Omaha & Grant Smelting Company.7 Refinery only. Betts electrolytic process.

Nevada
Nelson—Santa Barbara Searchlight Mining Company.
Spruce—Black Forest Mines & Smelting Company.

New Jersey:
Newark—Balbach Smelting & Refining Company. Refinery also.
Perth Amboy—Perth Amboy plant, American Smelting & Refining Company. Refinery also.

New Mexico:
Deming—National Mining & Smel'g Co.1

Pennsylvania:
Carnegie—Pennsylvania Smelting Co.

Texas:
El Paso—Kansas City Consolidated Smelting & Refining Company.7

Utah:
Midvale—United States Smelting Co.2
Murray—Murray plant, American Smelting & Refining Company.
Silver City—Tintic Smelting Company.
Tooele—International Smelting & Refining Company.

Washington:
Keller—Keller & Indiana Consolidated Smelting Company.1
Tacoma—Tacoma Smelting Company.3

Wisconsin:
Dodgeville—Blue Mounds Mining & Smelting Company1
Waukesha—Northern Smelting Co.1

Lead Smelters and Refineries in Canada.

British Columbia:
Trail—Consolidated Mining & Smelting Company of Canada (Ltd.) Refining also. Betts electrolytic process

Ontario:
Kingston— North American Smelting Company (Ltd).

Of these the following were not operated in the years 1911 to 1913 inclusive: Con. M. S. & T. Co., Four Metals, North Fork, Idaho S. & R. Co., Greyhound, Walters, Valle, New World, Santa Barbara Searchlight, Black Forest, National, Tintic, Keller & Indiana, Blue Mounds and Northern Smelting Company.

1 Not operated for several years.
2 Subsidiary of United States Smelting, Refining & Mining Company.
3 Subsidiary of American Smelters Securities Company.
4 Smelters of secondary materials, but treating some lead ore.
5 Subsidiary of National Lead Company.
6 Subsidiary of International Smelting & Refining Company.
7 Subsidiary of American Smelting & Re-

—o-O-o—

ALUMINUM—ANTIMONY

ALUMINUM IN APRIL.

Since our last report the aluminum business has been stagnant, consumption poor, and prices nominal. At present the American output is quite sufficient to take care of the requirements of the country and very little foreign metal has been sold, the foreign sellers showing no desire to force business at present prices. We quote 98-99% aluminum at 17¾ to 17⅝c f.o.b. New York, but what prices are being made by the American producer to the large consumers are carefully guarded, although they are probably less than these figures.

The low price of aluminum does not seem to have increased its use or created new uses in other channels. In Europe the price is less than 2c per pound above the price of copper but we do not hear that aluminum is displacing copper to any degree.

ALUMINUM, ANTIMONY AND SILVER IN APRIL.

		Antimony			Silver	
Day.	Aluminum. Cts.	Cooksons. Cts.	Hallets. Cts.	Hungarian. Cts.	New York. Cts.	London. d.
1.	18.12½	7.22½	6.95	5.90	58⅛	26⅛
2.	18.12½	7.22½	6.95	5.90	58⅛	26⅛
3.	18.12½	7.22½	6.95	5.85	58½	27
4	....	....	....	....	58⅛	26⅛
5.	....	....	....	....	....	....
6	18.12½	7.22½	6.95	5.85	58⅛	26⅛
7	18.12½	7.22½	6.95	5.85	58⅛	27
8	18.12½	7.22½	6.95	5.85	58½	26⅛
9	18.12½	7.22½	6.90	5.85	58½	26⅛
10.	....	....	....	....	58⅛	....
11.	....	....	....	....	58¼	....
12.	....	....	....	....	....	....
13.	18.12½	7.22½	6.90	5.80	58¼	....
14	18.12½	7.22½	6.90	5.80	58¼	26⅛
15.	18.12½	7.22½	6.90	5.80	58¼	26⅛
16	18.12½	7.22½	6.90	5.80	58¼	26⅛
17.	18.12½	7.22½	6.90	5.80	58¼	26⅛
18	....	....	....	....	58¼	26⅛
19	....	....	....	....	....	....
20.	18.12½	7.22½	6.90	5.80	58⅛	26⅞
21	18.12½	7.22½	6.90	5.80	58½	26⅛
22.	18.12½	7.20	6.85	5.80	58½	26⅛
23	18.12½	7.20	6.85	5.80	58	26⅛
24.	18.12½	7.20	6.85	5.80	58¼	26⅛
25	....	....	....	....	59	27⅛
26	....	....	....	....	....	....
27	17.87½	7.20	6.85	5.80	59⅛	27⅜
28	17.87½	7.20	6.85	5.80	59¼	27¼
29	17.87½	7.20	6.85	5.80	59	27⅜
30	17.87½	7.20	6.85	5.80	59¼	27¼
High	18.25	7.25	7.00	5.95	59¼	27⅜
Low.	17.75	7.15	6.80	5.75	58⅛	26⅛
Av'ge	18.077	7.217	6.898	5.821	58.52	26.96

ANTIMONY IN APRIL.

Antimony remained stagnant up to the end of the month, prices showing little or no change. During the closing week some demand sprang up for futures, and a good business was done for shipment from China and Japan during the balance of the year, but it has made no impression on prices or the demand for spot goods. There has been some speculation as to what effect war would have on the metal, it being remembered that in 1905 the Russian Government bought enormous quantities, reported at the time for use in the manufacture of smokeless powder and ammunition, and these purchases were primarily responsible for the price advancing from 7.00 to 17.50c. There are no signs of any such demand from any quarter at this time.

It is also reported that efforts are on foot to affect a syndicate in Europe for the regulation of output and prices, the former being too large, and present prices showing a heavy loss to producers. It is likely to come to nothing, and the antimony situation will be restored in time by the sound and old fashioned cure of unprofitable prices curtailing the output. The chief trouble at present is that Japan and China continue to throw large quantities on the market, apparently without regard to cost, and Europe except on the high priced grades cannot compete.

Average Monthly Prices of Cooksons Antimony in New York.

1913			1914.
Jan..	9.66	July	8.47	Jan...	7.30
Feb..	9.31	Aug.	8.38	Feb.	7.24
Mar..	9.03	Sept...	8.30	Mar.	7.23
Apr..	9.00	Oct..	7.66	Apr..	7.21
May.	8.77	Nov.	7.52	May.	
June.	8.63	Dec.	7.45	June.	

TRADE NOTES.

Youngstown Iron & Steel Co., Youngstown, O., have increased their stock from $1,200,000 to $3,000,000. Work on open-hearth furnaces provided for will be started shortly.

The Garden City Can Company, Chicago, Ill., has been incorporated with $10,000 capital stock, to manufacture tinware, etc. The incorporators were W. A. Jennings, P. H. Bishop, and H. P. Heizer.

The Trumbull Steel Company, Warren, O., have let contracts for doubling its plant. The company will build ten hot mills, including six 36-inch sheet mills, four 26-inch tin mills and five cold roll mills. The company recently increased its capital stock from $1,250,000 to $2,500,000.

The Star Brass Works, Seattle, Wash., has been incorporated with $6,000 capital by M. O. Stone and M. W. and E. Ryan.

The C. J. Rath Brass & Aluminum Co., has completed a plant at New Philadelphia, O., for the manufacture of brass and aluminum castings.

The Beach Foundry Co., Ltd., Ottawa, Can., has acquired the plant of the Butterworth Foundry Ltd. A specialty is made of stove castings.

The Ajax Brass Mfg. Co., Chicago., has been incorporated with a capital of $10,000 to operate a foundry. The incorporators are J. F. Lockrey, C. A. Soans and A. H. Graves, 53 West Jackson Blvd.

The Dresser Engine & Foundry Co., Oil City, Pa., has been formed by merging the Oil City Foundry Co. and the Flickinger Iron Works, Bradford, Pa. Gas engines, air and gas compressors will be manufactured and gray iron castings also will be furnished to the trade. The new company will erect a machine shop, 75x200 feet.

American Bronze Co., Berwyn, Pa., will erect an addition to its plant, which will increase the capacity of the foundry 40 per cent and of the finishing department 75 per cent.

The Kramer Governor Co., Milwaukee, Wis., incorporated with $100,000 capital, will engage in the manufacture of a governor for gasoline engines as applied to motor vehicles. Benjamin G. Kramer is president and general manager. The concern will occupy the present B. G. Kramer Co. shops at 243 Lake street, Milwaukee.

The Progressive Copper & Brass Works, 325 Bingaman street, Reading, Pa., has added a brass shop to their foundry.

Richardson Mfg. & Distributing Co., N. Y. City has been incorporated; metal goods; by F. K. M. Delavan, Nicholas Orlando, G. D. Richardson, 367 Fulton street, Bklyn. N. Y.

Rempis & Gallmeyer, Grand Rapids, Mich. plan to build a large brass foundry in with their iron and steel plant on Front street.

The Grant Valve & Mfg. Co., Richmond, Cal., recently incorporated with $150,000 capital will erect a plant for the manufacture of valves, castings and plumbers' supplies.

The Taylor-Wharton Iron & Steel Co., High Bridge, N. J., will erect an extensive plant at Easton, Pa. The buildings will include a foundry, machine shop, grinding shop, pattern shop, etc., and blacksmith shop.

The Thiele & Baker Mfg. Co., London, O., has been incorporated with a capital stock of $25,000, to manufacture metal fence. Among the incorporators are S. S. Baker, E. A. Thiele, C. L. Thomas, B. B. Thompson and H. C. Hasues.

The Hadley Mfg. Co., Indianapolis, has bought a 700-acre tract at Davis, Mo. and it is reported that the firm intends to erect a large plant for manufacturing agricultural implements. Armetus N. Hadley is president.

O. K. Harry Steel Works, Dallas, Texas, has been incorporated for $80,000, by O. K. Harry, J. M. Harry, and W. R. Clark

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THE TRADE OUTLOOK.

The depression in business instead of passing away has during the past month become more acute. Closed factories, and in other cases running only half to three-quarter time, with the consequent unemployment to those dependent on their daily earnings to cope with the unchanged high cost of living, and the consequent distress, makes it difficult to-day to recognize the busy and prosperous country of a year ago. Sentiment has become less hopeful each day, enterprise dormant, business sick and despondent.

The business community seems to have lost confidence in our legislators, and in any change for the better until our promised crop brings an improvement in trade, and the adjournment of Congress brings a rest from the daily pressure and disturbance to the heart of the country, which is its business interests. These are the bright spots in the business situation. Congress cannot make the rains fall from Heaven, nor can it stop the sunshine, thanks to the blessings and over-rulings of a merciful Providence, and we also know that Washington, while it may temporarily demoralize the energies and destroy the courage and confidence of the country, it cannot do so permanently.

We did not need the profound wisdom of the President to tell us, as he did lately, that fundamentally the country is in a sound condition, and that business should at this time be active and the country prosperous. That fact we all know—it is indisputable.

What then is responsible for present conditions? The verdict of our business interests is unanimous. It is the amateurish and theoretical efforts to regulate business and capital along radical lines, and to do it

EDITORIAL.

with a rush, by those, who from lack of experience, do not understand the first principles of business, and are therefore puzzled to find that their efforts are causing profound disturbance and depression. The President dismisses our business depression as being "imaginary" and "psychological," and his Minister of Commerce says it's only a case of "mental mourning." Well might one paraphrase Madam Roland's exclamation, and say: "Oh psychology, what crimes are committed in thy name."

What could be more depressing, than such blindness and complete indifference as we have seen to the protests and warnings of every Chamber of Commerce and business association in the land. But perhaps still greater cause for apprehension is to be found in the unanimous vote last week, to omit labor from the operations and rulings of the Sherman Anti-Trust Law; in other words, to make one law for labor unions and another for capital and business.

Of course, our present troubles will be survived, and in time the cause for them removed. The reduced pay envelope, and in some cases no pay envelope at all, has become a potent argument. We expect to see it demonstrated at the first opportunity.

We consider we represent the feeling of the steel and iron and metal trades and the entire business community in our criticisms. In trade circles nothing else is discussed. Political affiliations are forgotten, it has become a business matter of life and death.

We give elsewhere our usual tabulation of the favorable and unfavorable features in the situation, and it can be seen at a glance, that but for the political situation, the outlook is most promising.

Our duty is not to be tempted to make things worse by losing heart, or by unwise exaggerations of what is unfavorable in our effort to hurry a revolt and change. It is a time for courage and patience, still at the same time for determined and continued efforts to keep the facts before the public, to whom we must now turn since our legislators have refused to consider our protests.

Our appeal must now be made to the intelligence and common sense and patriotism of those, whose will must in the end be supreme, the American public. We have no doubt or fears of what their decision will be.

WELSH AND AMERICAN TIN PLATE PRACTICE.

A very interesting report of American tin plate mill equipment and practice, with running comparisons of Welsh conditions, has been made by Mr. Ivor H. Gwynne, general secretary of the Tin and Sheet Millmen's Association, of South Wales, a full abstract of which is given elsewhere in this issue.

Mr. Gwynne writes as an expert, though his observation or memory has been defective at some points, and we have made certain omissions and two or three editorial references which we hope makes what we print entirely trustworthy. His reference to the large outputs in the United States is of particular interest, when he shows clearly that despite the large outputs the men individually do not work as hard as they do in Wales, this by reason of a more advantageous distribution of the work and the employment of helpers. Furthermore, the wage rates per ton of output on 29, 30 and 31 gauges, which comprise almost the entire output, are precisely 115% higher in the United States than in Wales, so that the common expression in tariff discussions of American wages being "double" those in Wales enjoys the somewhat unique distinction of being under the market, according to the testimony of the Welsh expert, that is, the wage per ton is 115% greater in the United States than in Wales. Mr. Gwynne's figures furthermore are that there are nine men in the crew in the United States, against four men in Wales, while the outputs are "85 to 100% greater," from which it would appear that the earnings per man average twice as much in the United States as in Wales, in which connection it must be remembered, as just noted, that Mr. Gwynne's testimony is the men do not need to work nearly as hard in the United States, owing to the system. He lays emphasis upon this point, evidently for the purpose of correcting a prevalent misconception in Wales.

It is interesting to observe the unstinted praise given by Mr. Gwynne to such a common appliance as the electric traveling

crane, as saving much effort on the part of the men, and conducing to large outputs. We might remark that if American tin plate makers had not been given the electric traveling crane they nevertheless would not be in the awkward position of the Welsh makers, using jib cranes or none at all. The present writer well recalls a very efficient pneumatic traveling crane installed nearly 20 years ago, and just before the advent of the electric traveler, in the Ellwood, Pa., tin plate works by J. R. Phillips, one of the foremost tin mill managers of the time, and whose name survives in the corporate title of one of the most prominent tin plate concerns of today. If the electric crane had not come the pneumatic crane which Mr. Phillips exhibited with such pride would at least have been a great improvement over the Welsh inconveniences of to-day.

It is almost equally interesting to learn that Mr. Gwynne does not like the American tin plate squaring shear although the American tin plate trade regards the crocodile shear used in Wales as a standing joke.

Attention should be called to Mr. Gwynne's hearty commendation of the efforts made by American tin plate manufacturers to make the work of the hot mill men easy. Of course Mr. Gwynne's viewpoint is that of the Welsh workman but we do not think that fact detracts at all from the validity of his statements.

OUR COMING BUMPER CROP.

Prosperity That Politics Cannot Affect.

A crop of 900,000,000 bushels of wheat, almost half of the world's average wheat production, and a new record for the United States, is the prospective total yield of the farms of the country this year, as estimated by the Department of Agriculture in its June crop report issued as we go to press.

The enormous wheat harvest will be 137,000,000 bushels more than has ever been grown before in the United States in any one year, and is due to excellent weather and an increase of 6.4 per cent. in the acreage planted.

There will also be large yields of oats and barley, probably second in size on record.

The Department of Agriculture's report in detail is as follows:

Spring Wheat.— Area planted, 17,990 000 acres, compared with 18,485,000 acres last year, 19,243,000 acres in 1912, and 20,381, 000 acres in 1911. Condition, 95.5 per cent, of a normal, compared with 93.5 per cent, last year and 93.6 per cent. the ten-year average. Indicated yield, 14.6 bushels per acre, compared with 13 bushels last year and 13.3 bushels, the 1909-13 average. Estimated total production, 262,000,000 bushels, compared with 239,819,000 bushels last year, 330,348,000 bushels in 1912, and 190,682,000 bushels in 1911.

Winter Wheat—Area planted 35,387,000 acres, compared with 31,699,000 acres last year, and 29,571,000 acres in 1912. Condition, 92.7 per cent. of a normal, compared with 95.9 per cent. on May 1 this year, 83.5 per cent. June 1 last year, and 80.8 per cent., the 10-year average. Indicated yield, 18.1 bushels per acre, compared with 16.5 bushels last year and 15.6 bushels, the 1909-13 average. Estimated total production, 638,000,000 bushels, compared with 523,561,000 bushels last year, 399,919,000 bushels in 1912, and 430,656,000 bushels in 1911.

All wheat—Area planted, 53,377,000 acres, compared with 50,184,000 acres last year, 45,814,000 acres in 1912 and 49,543,000 acres in 1911. Condition, 93.7 per cent. of a normal, compared with 87.2 per cent. last year and 85.5 per cent., the 10-year average. Indicated yield, 17.9 bushels per acre, compared with 15.2 bushels last year and 14.7 bushels, the 1909-13 average. Estimated total production, 900,000,000 bushels, compared with 763,380,000 bushels last year, 730,267,000 bushels in 1912, and 621,338,000 bushels in 1911.

Oats—Area planted, 38,383,000 acres, compared with 38,399,000 acres last year, 37,917,000 acres in 1912 and 37,763,000 acres in 1911. Condition, 89.5 per cent of a normal, compared with 87 per cent. last year and 88.6 per cent., the ten-year average. Indicated yield 31.7 bushels per acre, compared with 29.2 bushels last year and 30.6 bushels, the 1909-13 average. Estimated total production, 1,216,000,000 bushels, compared with 1,121,768,000 bushels last year, 1,118,337,000 bushels in 1912 and 922,-

298,000 bushels in 1911.

Barley—Area planted, 7,528,000 acres, compared with 7,499,000 acres last year, 7,530,000 acres in 1912 and 7,627,000 acres in 1911. Condition, 95.5 per cent. of a normal, compared with 87.1 per cent. last year and 90.1 per cent, the ten-year average. Indicated yield, 27.3 bushels per acre, compared with 23.8 bushels last year and 24.3 bushels, the 1909-13 average. Estimated total production, 206,000,000 bushels, compared with 178,189,000 bushels last year, 223,824,000 bushels in 1912, and 160,240,000 bushels in 1911.

Rye—Condition, 93.6 per cent. of a normal, compared with 93.4 per cent. on May 1, 1914, 90.9 per cent. on June 1 last year, and 89.7 per cent., the ten-year average Indicated yield, 17.2 bushels per acre, compared with 16.2 bushels last year, and 16.1 bushels, the 1909-13 average.

Hay—Condition, 88.7 per cent. of a normal, compared with 90.9 per cent. on May 1, 1914, 87.5 per cent. last year, and 87.4 per cent., the six-year average.

Pastures—Condition, 99.8 per cent. of a normal, compared with 88.3 per cent. on May 1, 1914; 89.2 per cent. in 1913, and 90 per cent., the ten-year average.

THE STOCK MARKET.

The volume of stock transactions on the New York Stock Exchange during the month of May reached a total of 4,685,762 shares, against 7,068,238 shares in April and 5,418,952 shares in May, 1913. The par value of bonds sold during the past month amounted to $43,404,000, as compared with $55,751,000 in April and $41,820,000 in May of last year. The aggregate of stock transactions for the first five months of 1914 is thus brought up to 33,765,625 shares, against 36,296,012 shares during the corresponding period in 1913. Bond sales for the first five months of the current year amounted to $317,212,600, compared with $241,247,000 last year.

The following table shows the aggregate transactions in stocks and bonds on the New York Stock Exchange for the month of May during a series of years:

Stocks, Shares.

1914	4,685,762	1907	15,787,245
1913	5,418,952	1906	24,062,000
1912	12,832,000	1905	20,507,527
1911	11,607,578	1904	5,301,023
1910	11,874,630	1903	12,476,858

Bonds, Par Value.

1914	43,404,000	1907	34,123,000
1913	41,820,000	1906	60,962,000
1912	60,500,000	1905	68,523,000
1911	91,565,000	1904	37,869,000
1910	41,386,000	1903	5°,339,000
1909 ...	116,233,000	1902	62,618,000
1908 ...	101,084,000	1901 ...	111,007,000

COMMODITY PRICES.

Bradstreet's index number as of May 1st last discloses another drop, the figures working out at $8.6224, while the ratio of decline from April 1st is 1.5 per cent. Since December, 1913, the movement has been uninterruptedly downward, and the index number just given is at the lowest level reached since July of 1911.

It is 5.6 per cent under that of May 1, 1913, when quotations also were receding from the record points of immediately preceding months, and it exhibits a drop of approximately 7 per cent from that date in 1912.

Comparison with May 1, 1911, when trade was lethargic in character, shows a rise of nearly 2 per cent in favor of the present index number; while contrast with that time in 1910 reflects a drop of 4.6 per cent, and as compared with May 1, 1907, there is a fall of 3.5 per cent. However, the present level is higher than those exhibited on May 1, 1909 and 1908, which were almost at the lowest point of recent years.

The movement in England was not so markedly downward, one authority showing a drop of six-tenths of 1 per cent, while another indicates a decline of five-tenths of 1 per cent.

The following table gives "Bradstreets" index numbers (the totals of the prices per pound of ninety-six articles) since January 1, 1909:

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	8.263	9.231	8.836	8.949	9.493	8.885
Feb.	8.302	9.073	8.766	8.958	9.459	8.861
Mar.	8.217	9.111	8.603	8.902	9.405	8.832
Apr.	8.316	9.200	8.522	9.098	9.297	8.756
May	8.302	9.039	8.458	9.270	9.139	8.622
June	8.396	8.911	8.529	9 102	9.072	
July	8.457	8.925	8.594	9.112	8.952	
Aug.	8.504	8.822	8.657	9.159	9.011	
Sep.	8.591	8.952	8.819	9.215	9.100	
Oct.	8.748	8.927	8.806	9.451	9.152	
Nov.	8.964	8.877	8.892	9.478	9.225	
Dec.	9.126	8.784	8.982	9.546	9.229	
Year	8.515	8.989	8.713	9.186	9.211	

DIGEST OF BUSINESS CONDITIONS.

FAVORABLE.

1. **Crop Outlook** never better. Record winter wheat crop practically assured. Other crops have a good start, acreage large and ideal weather conditions. Some damage to cotton crop is reported but believed to be unimportant.

2. The **rate decision** cannot be much longer delayed and is daily expected. Prospects that the Commission will authorize some increase in the railroad rates, enabling the largest consumer of iron and other metals and their products, to resume purchases.

3. The prospect that the **Fall election** will return a Republican majority, and tie the present Administration's hands in regard to radical legislation in business for the succeeding two years and give the business interests of the country a rest.

4. **Labor conditions** improved in the cities by the call from the farming districts for hands to harvest what are expected to be record crops. Fewer strikes and labor demands caused by appreciation of labor of the existing business depression.

5. Unusually large **cash reserves** and **deposits** in banks awaiting employment and investment the moment confidence is restored.

6. **Federal Reserve Board** nominations meet approval of banking and business interests of the country and the machinery getting rapidly in shape to begin operations.

7. Every prospect of some settlement of the **Mexican situation** without our being involved in war with that country, which settlement will improve conditions, and make for increased trade, and a greater development of the mineral resources of our neighbor and increased American business opportunities.

8. The thoroughly **liquidated condition of business.** The stocks of commodities in manufacturers' and consumers' hands being very small and prices at a low level.

UNFAVORABLE.

1. President Wilson's determination to carry through his program of **Anti-Trust legislation**, before the adjournment of Congress, in the face of the unanimous protest of the Chambers of Commerce and the business interests of the country.

2. The exhibition in the House of Representatives of the passage without a dissenting vote, of the Webb amendment of the Clayton Anti-trust bill, which exempts labor unions and farmers' alliances from the operations of the Sherman Act, or with a purpose of deceiving the beneficiaries into such a belief—virtually making one law for business and capital and another for labor.

3. The growing **lack of confidence** of the country in its representatives at Washington, irrespective of party. The complete failure of the President and his advisers to appreciate the seriousness of the state into which business has drifted, and which President Wilson in spite of the concrete condition of stagnation in trade and closed factories, describes as purely psychological.

4. Increase in imports—decrease in exports, and consequently a trend towards **unfavorable trade balances**.

5. The **discouraged feeling of business interests,** with its accompanying lack of courage and enterprise. The feeling that we are in for hard times. The apparent conclusion that only natural conditions and the intelligence and patriotism of the people will work a cure, and which therefore will be a very slow operation.

6. **Decreasing immigration**—smallest in six years except 1911.

7. The fact that industry has suffered so long not only from the reduced volume of business but from losses, that unless a change comes soon, what has gone before will be demonstrated by **increased failures.** This is shown in the scrutiny which accompanies the granting of credits, in spite of plenty of unemployed surplus funds.

8. No decrease in the **cost of living,** while the lessened employment increases not only the economy but the distress of many in the ranks of labor, on whose prosperity depends the prosperity of the country.

BUSINESS TRENDS.

BUILDING OPERATIONS.

According to "Bradstreet's" the total building expenditures for April at 145 cities were $80,129,356, as against $80,713,785 in March and $94,903,554 in April a year ago. There is here shown a decrease of se entenths of 1 per cent from March and 15.5 per cent from April a year ago, with 78 cities out of the 145 showing decreases as against 67 showing increases over April, 1913. It might be noted that the decrease of 15.5 per cent from April last year follows a decrease of 6 per cent in April, 1913, from 1912, but that month of the latter year showed a gain of 19.4 per cent over 1911.

The record of building expenditures at leading American cities reporting monthly, quarterly and yearly from April 1912 down to and including April, 1914, shows the ebb and flow in the building industry in the past twenty-two months, as follows:

Cities.	1913.	1912.		
Apr. 145	96,918,246	103,189,722	D.	6.0
May 146	88,706,252	95,008,769	D.	6.6
June 146	80,859,953	96,958,920	D.	16.6
2d quarter	266,484,451	295,157,411	D.	9.7
Six months	463,186,846	474,753,575	D.	2.4
July 145	75,501,375	87,580,278	D.	13.7
Aug. 146	63,720,880	83,462,183	D.	23.6
Sep. 143	76,720,050	68,680,476	I.	11.7
3rd quarter	215,942,305	239,722,967	D.	10.0
9 months.	679,129,151	714,476,512	D.	5.0
Oct. 144	63,035,385	73,128,886	D.	13.8
Nov. 145	50.405,703	71,176,911	D.	29.1
Dec. 146	67,409,818	72,180,455	D.	6.6
4th quarter	180,847,906	216,486,252	D.	16.4
Year	859,977.057	930,962,764	D.	7.6
	1914.	1913.		
Jan. 146	45,999,862	55.514,979	D.	17.1
Feb. 148	51,376,112	62,784,999	D.	18.1
Mar. 150	85,610,997	83,388,638	I.	2.6
Apr. 145	80,129,356	94,903,545	D.	15.5
1st quarter	181,986,971	201,688,616	D.	9.7

BANK CLEARINGS.

Bank clearings for May, as reported by "Bradstreet's" certainly do not bear out President Wilson's conclusion that the reaction in the country's trade and industrial activities are psychological. They suggest clearly that the depression is actual and practical.

The returns show that bank clearings for the month of May at all centers aggregated $13,035,996,225, a drop of 11.7 per cent from April, of 6.7 per cent from May, 1913, of 11.3 per cent from that month in 1912, and of 2.4 per cent from May, 1911. Bank clearings at New York for the month of May, $7,238,531,558, were, with the exception of the total for February, the smallest for any month since September of 1911. Besides, the sum given is the lightest reported for any May since 1908, and back of that since 1904. The loss from April is 15 per cent, from May of last year 9 per cent, and from that month in 1912, 17 per cent.

Outside of New York, the total for May, $5,797,464,667, is 6 per cent under April, 3.6 per cent below May, 1913, and 2.1 per cent less than for May, 1912. For five months the total at all centers is $70,704,457,234, a loss of only 1.4 per cent from the same time last year and of 1.3 per cent from 1912.

New York city's figures for the five month's period reflect a drop of 1.9 per cent from last year and of 4 per cent from the corresponding time in 1912. Outside of New York the total for five months is $30,458,442,436, a decline of six-tenths of 1 per cent from the first five months of 1913, but a gain of 3.3 per cent over the like period in 1912.

Following are the aggregate of clearings monthly at all cities in the United States, compared with the like periods in four preceding years as reported by Bradstreets:

(Six figures omitted)

	1914.	1913.	1912.	1911.	1909.
Jan.	$16,053	$16,092	$14,977	$14,341	$13,905
Feb.	12,736	13,483	12,788	12,136	11,121
Mar.	14,112	13,988	14,330	13,323	12,473
1st qr.	42,901	43,563	42,095	39,810	37,499
April	14,767	14,155	14,855	12,254	13,531
May	13,035	13,972	14,708	13,367	12,868
June	.....	13,581	13,519	13,691	14,007
2d qr.	.....	41,708	43,082	39,312	40,406
July	.....	13,423	13,847	12,925	13,322
Aug.	.....	12,260	13,097	12,495	13,390
Sep.	.....	13,290	12,956	12,410	13,405
3d q'r	.....	38,970	39,900	37,830	40 117
Oct.	.....	15,553	17,002	13,335	15,710
Nov.	.....	13,743	15,228	13,891	14,620
Dec.	.....	14,536	15,217	14,027	15.721
4th q'r	....	43,832	47,447	41,253	46,032
Total	.....	168,076	172,524	158,195	164,054

BUSINESS TRENDS.

OUR FOREIGN TRADE.

Foreign trade figures for April show some marked contrasts, exports declining in just about the proportion that imports increased, as compared with April a year ago, or about 18 per cent in each case. The result of ebb and flow was an excess of imports of $10,271,872 in April, the first excess of imports reported since the summer of 1910, in July and August of which imports slightly exceeded exports.

The April returns are compared in the following table with the returns of the same month last year.

	April, 1914.	April, 1913.
Exports	162,368,852	199,813,438
Imports	172,640,724	146,194,461
Excess imports	10,271,872	
Excess exports		53,618,977

IDLE RAILWAY CARS.

The fortnightly bulletin of the American Railway Association shows that on May 15th there was a net surplus of freight cars on the lines of the United States and Canada of 238,642 compared with 22° 879 on May 1st, an increase of 9,763.

The fortnightly figures are given below, with the returns for other periods figures representing net surplus of idle cars, except where otherwise indicated:

1914—		1913—	
May 15	†238,642	Sep. 15	40,150
May 1	228,879	Sep. 1	58,306
Apr. 15	212,869	Aug. 15	54,425
Apr. 1	139,518	Aug. 1	58,445
Mar. 15	‡124,865	July 15	69,405
Mar. 1	153,907	June 30	63,704
Feb. 15	197,052	June 14	63,927
Feb. 1	209,678	May 31	50,908
Jan. 15	214,889	May 15	50,294
Jan. 1	188,850	May 1	39,799
1913—		April 15	57,498
Dec. 15 ...	†101,545	April 1 . .	57,988
Dec. 1	57,234	Mar. 15	37,775
Nov. 15	22,652	Mar. 1	31,381
Nov. 1	*1,842	Feb. 15	22,183
Oct. 15	*6,048	Feb. 1	37,260
Oct. 1	10,374	Jan. 15	28,439
		Jan. 1	17,053

* Net shortage; † Maximum surplus for year; ‡Minimum surplus for year.

NEW INCORPORATIONS.

Papers filed in the Eastern States last month strongly prove that times are still unpropitious for the promotion of new enterprises. For example, new companies incorporated with $1,000,000 or over, including increases in capital, represented a total of only $62,700,000. This is $73,485,000 below the previous month and $109,50 ,000 less than ithe May total a year ago. The grand total of all companies chartered 'as month with a capital of $100,000 or over covering all States, including those of the East, amounted to $162,965,000, against $136,185,-000 in April. In May last year it was $234,-230,000.

Following are the comparative figures as specially compiled by The Journal of Commerce and Commercial Bulletin of companies incorporated in the Eastern States during the last three years with an authorized capital of $1,000,000 or more:

	1914.	1913.	1912.
Jan. ..	$120,050,000	$332,450,000	$210,520,000
Feb. ..	51,575,000	191,500,000	166,300,000
Mar. ..	57,700,000	166,030,000	159,578,000
April.	136,185,000	198,718,000	281,457,000
May ..	62,700,000	172,200,000	140,284,000
Total	$428,210,000	1,060,898,000	958,139,000
June		79,550,000	280,170,000
July		83,650,000	253,518,000
Aug.		63,500,000	164,500,000
Sept.		42,750,000	115,050,000
Oct.		70,856,300	169,495,000
Nov.		77,800,000	154,200,000
Dec.		55,250,000	200,100,000
Total		$1,534,254,300	$2,295,172,000

PIG IRON PRODUCTION.

Daily rate of production of coke and anthracite pig iron, gross tons:

	1910	1911.	1912.	1913.	1914.
Jan. .	84,148	56,752	66,384	90,172	60,808
Feb...	85,616	64,090	72,442	92,369	67,45°
Mar..	84,459	70,036	77,591	89,147	75,738
April.	82,792	68,836	79,181	91,759	75,665
May..	77,102	61,079	81,051	91,039	67,506
June .	75,516	59,585	81,358	87,619	.....
July..	69,305	57,841	77,738	82,601	.. ....
Aug. .	67,963	62,150	81,046	82,057	.....
Sep...	68,476	65,903	82,128	83,531	....
Oct...	67,520	67,811	86,722	82,133	....
Nov..	63,659	66,648	87,697	74,453	.....
Dec...	57,349	65,912	89,766	63,987	.....

THE NEW TARIFF.

A Detailed Comparison of Actual Trade Before and After.

In this presentation we do not hold a brief for or against the new tariff. Nearly everything we have seen published was obviously prepared by men who held briefs on one side or the other. The statements have been very largely **ex parte** and arguments and conclusions were mixed with facts in a manner calculated to produce opinions conforming to the writer's position. It has seemed well to us therefore to present a plain statement of the actual trade movement before and after the date of the new tariff. The new tariff became effective Saturday morning, October 4, 1913, but comparisons are necessarily by months. At this writing full details of the April commerce are not available, only the totals of imports and exports having been published, so that our summary naturally covers the six months before and the six months after the new tariff.

There is one fact which impairs to an extent, but only to a limited extent, the authority of the figures, and that is that the monthly import figures as published by the Bureau of Statistics are those of "General imports" including entries for consumption and entries for warehouse. They are not the "imports for consumption" which are published at later dates, and only for quarters, and including the imports for consumption and withdrawals from warehouse. Thus it occurs that merchandise may be returned in the figures we quote as imported in September, when it may have gone into warehouse in September, not to be withdrawn, upon payment of duty, until the new tariff went into effect. It was doubtless on this account that the September imports, as published, were larger than the October imports. In periods of six months, however, the influence of this fact is not very large. In any event, the figures given are the only statistics available.

Summary of the Showing.

Apart from the detailed showing made by the accompanying diagram the following summary is prepared.

Imports and exports for six months before and after the new tariff, i.e., six months ending September and six months beginning October, were as follows:

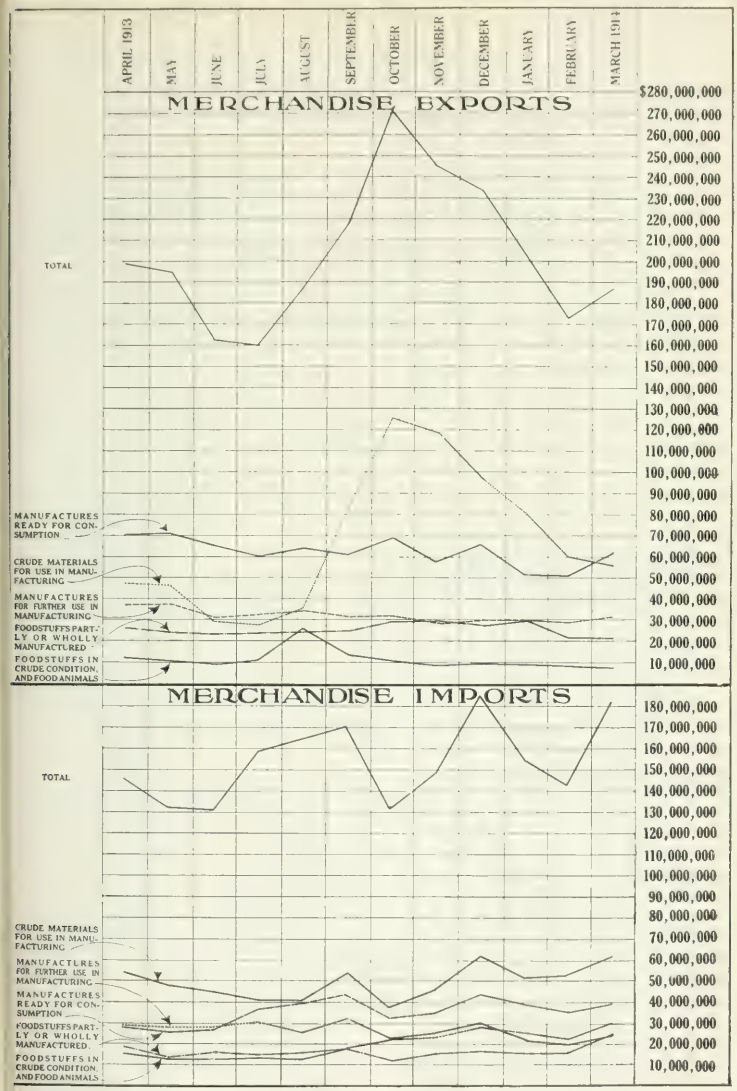
	Imports.	Exports.
Before	$877,712,385	$1,124.957,747
After	950,837,580	1,316,445,870
Increase	$ 73,125,195	$ 191,488,123
Increase, per cent.	8.3%	17.0%

The total business, imports plus exports, also the favorable balance of trade, exports less imports, together with the changes from the one period to the other, are shown below:

	Total business.
Before	$2,002,670,132
After	2,267,283,450
Increase	$ 264,613,318
Increase, per cent	13.2%
	Favorable balance.
Before	$247,245,362
After	365,608,290
Increase	$118,362,928
Increase, per cent	47.8%

All these statistics are extremely favorable, from a trade standpoint. It is an advantage that our exports should increase, while an increase in imports is not especially disadvantageous as long as it is less than the increase in exports. We cannot increase our trade balance indefinitely.

While these statistics are favorable from a trade standpoint, we do not see that they are in particular favorable to the new tariff. There are certain grounds for arguing that in the long run, by furnishing cheaper raw materials, the new tariff could operate to increase our exports, but we do not believe that such an influence, while possible in the long run, could in any event make a marked impression on the trade movement in the first six months of the new tariff. It would be almost as idle to make this claim as it is to state, as has been done time after time in the past few weeks in newspaper headlines, that the new tariff is increasing our imports and decreasing our exports, when the full and complete statistics here given show that our exports have



The statistics in detail from which the accompanying diagram has been prepared are given on the following page.

MERCHANDISE EXPORTS.

	Crude materials for use in manufacturing.	Foodstuffs in crude condition, and food animals.	Foodstuffs partly or wholly manufactured.	Manufactures for further use in manufacturing.	Manufactures ready for consumption.	Miscellaneous.	Foreign.	Total.
April, 1913	17,556,871	13,209,610	26,178,111	37,044,590	70,666,100	1,580,524	3,579,732	199,815,538
May	16,077,305	14,006,869	24,937,913	37,050,329	71,262,520	709,886	3,553,422	194,598,244
June	29,708,193	9,015,447	23,737,499	31,453,499	65,749,241	509,031	3,232,036	163,404,916
July	27,146,725	12,944,652	23,138,221	33,730,895	60,814,467	401,693	2,817,125	160,990,778
August	35,333,193	26,731,226	23,957,583	34,026,345	64,710,943	351,983	2,794,747	187,909,020
September	84,623,044	14,841,653	23,944,221	31,586,893	61,550,083	470,083	2,422,374	218,239,251
October	125,239,556	11,764,519	29,775,173	32,678,284	68,818,055	721,137	2,858,039	271,855,054
November	118,225,262	8,879,251	29,908,137	28,158,021	57,654,126	561,321	2,163,974	245,550,392
December	97,081,219	9,977,309	27,801,285	30,118,856	65,096,845	699,967	2,712,284	233,487,765
January, 1914	80,811,815	9,085,370	29,179,696	29,522,534	52,435,369	609,230	2,457,597	204,131,641
February	60,185,126	8,549,477	22,153,990	28,491,259	51,685,466	539,820	2,316,646	173,921,784
March	56,319,364	7,168,732	22,989,066	32,856,618	63,739,633	861,188	3,564,633	187,499,234

MERCHANDISE IMPORTS.

	Crude materials for use in manufacturing.	Foodstuffs in crude condition, and food animals.	Foodstuffs partly or wholly manufactured.	Manufactures for further use in manufacturing.	Manufactures ready for consumption.	Miscellaneous.	Total.
April, 1913	52,988,482	15,991,013	18,243,578	29,278,333	28,937,438	756,436	146,195,280
May	49,553,546	13,679,948	14,660,024	28,422,621	26,454,960	674,913	133,446,012
June	45,291,310	13,590,979	16,319,705	28,068,264	27,523,376	422,243	131,215,877
July	44,834,636	14,163,152	15,644,137	30,829,564	36,259,002	401,693	158,173,653
August	41,706,017	13,529,897	16,432,981	25,697,795	39,086,873	1,234,157	137,687,720
September	53,711,557	18,790,421	18,540,892	33,609,714	44,297,436	2,043,823	170,993,843
October	39,809,970	22,875,540	12,996,192	22,327,906	33,677,864	1,191,424	132,878,896
November	46,769,356	25,372,112	15,575,722	23,784,351	35 149,509	1,565,486	148,216,536
December	62,463,050	30,058,427	16,769,368	28,688,135	44,616,400	1,992,191	184,587,571
January, 1914	51,275,462	21,285,148	15,711,245	25,211,004	39,089,973	1,845,415	154,418,247
February	52,938,925	19,993,722	15,649,113	22 401,291	35,572,469	1,417,856	147,973,376
March	62,867,811	24,087,199	21,289,776	30,033,091	39,836,077	1,649,000	182,762,954

increased by double the ratio (17.0 per cent against 8.3 per cent) that our imports have decreased, while the actual increase in exports ($191,488,123 against $73,125,195) is two and one-half times the increase in our imports.

Finally, the favorable balance of trade has increased by 47.8 per cent, or almost one-half. The change is certainly not attributable to the new tariff, and as a matter of fact trade balances from one period of months to another have frequently varied in even greater ratio, but the negative showing, with respect to the tariff, is beyond question an important one, as proving that no trade movement has thus far occurred which discredits the new tariff in this respect.

The Character of Imports.

The statistics divide imports into the following classes:

Crude materials for use in manufacturing.
Foodstuffs in crude condition, and food animals.
Foodstuffs partly or wholly manufactured.
Manufactures for further use in manufacturing.
Manufactures ready for consumption.
Miscellaneous, averaging a fraction of one per cent of the grand total.

The changes from the one six months to the next have been as follows in these different classes of merchandise:

Crude materials increased 11 per cent.
Crude foodstuffs, etc., increased 72 per cent.
Manufactured foodstuffs increased 0n: per cent.
Manufactured goods for manufacturing decreased 14 per cent.
Manufactures for consumption increased 12 per cent.

In these changes there is furnished no clear argument for or against the new tariff. If one point to the increase of 11 per cent in crude material, there is the increase of 12 per cent in manufactures ready for consumption. There is the increase of 72 per cent in crude foodstuffs, but one can hardly claim that the farmer has been put out of business; the change is probably incident to the season. Manufactured foodstuffs, on the other hand, showed no change, whereas one might expect a decrease, when crude foodstuffs showed a large increase. Evidently manufacturers who convert crude foodstuffs into foodstuffs for consumption have not suffered in activity through any direct influence of the new tariff. Finally, there is the decrease on 14 per cent in partly manufactured goods, other than foodstuffs, which can hardly prove anything for either side, when both crude materials and finished products showed increases.

The Character of Exports.

The export statistics divide merchandise according to the same classification as is used for imports. The following changes occurred, comparing the six months before and the six months after the new tariff:

Crude materials increased 100 per cent.
Crude foodstuffs, etc., decreased 27 per cent.
Manufactured foodstuffs increased 11 per cent.
Manufactures for use in manufacturing decreased 11 per cent.
Manufactures for consumption decreased 9 per cent.

The showing is a very mixed one, except in the one particular that exports of crude materials doubled. From a trade viewpoint nothing could be more unsatisfactory. We desire to export, but we do not want to export crude materials. Without adequate support from other statistics, however, it is not easy to make a clear argument against the new tariff from this particular item. Exports of crude materials doubled, but imports of crude materials increased only 11 per cent. In any event no one can claim that we exported more crude materials at the expense of making an equally large increase in our imports of crude materials, as that would be absurd.

Iron and Steel.

Statistics of the value of iron and steel exports and imports before and after the new tariff prove nothing, as there were special trade conditions, but as some erroneous arguments have been published it may be well to give the figures. In the following table are shown total values, by months, of iron and steel imports and exports respectively. The classifications, of course, is that of the government, and substantially everything that could be called iron and steel is included in each case. The export figures, however, do not include the large quantities of agricultural implements and electrical machinery which are exported. They include other machinery, as well as

hardware, cutlery, and the ordinary iron and steel products.

	Imports.	Exports.	Favorable balance.
April, 1913	$2,849,819	$27,123,044	$24,273,225
May	3,181,597	26,718,970	23,537,373
June	3,291,875	25,228,346	21,936,471
July	3,080,683	24,170,604	21,089,921
Aug.	2,415,212	23,947,440	21,532,228
Sept.	2,428,841	22,831,082	20,402,241
Oct.	2,574,978	25,189,745	22,614,767
Nov.	2,495,093	20,142,141	17,647,048
Dec.	2,814,774	22,616,701	19,801,927
Jan. 1914.	2,334,895	16,706,836	14,371,941
Feb.	2,175,746	16,520,260	14,344,514
Mar.	2,880,165	20,551,137	17,670,972

The changes, from the six months before the new tariff to the six months afterwards, were as follows:

	Imports.	Exports.	Balance.
Before.	$17,248,027	$150,019,486	$132,771,459
After..	15,275,651	121,726,820	106,451,169
Change	—1,972,376	—28,292,666	—26,320,290

The showing, of course, is altogether negative. The decrease in imports was not due to the tariff, for necessarily the reduction in the tariff tends to increase imports. The decrease which the figures to date show is due merely to the lessned activity in the American market. The imports are made up quite largely of ferromanganese and similar raw materials.

The decrease in exports is likewise negative, in its showing. Certainly the tariff reduction would not decrease exports, and if it made the American steel trade dull, through its influence upon trade generally, there would indirectly be a tendency to increase exports. The decrease in iron and steel exports is due to poor trade abroad.

Incidentally, it may be noted that the total iron and steel trade for the twelve months, imports plus exports, is $304,269,984 while the favorable balance, $239,222,628, is 79 per cent of the total trade, indicating a remarkable relation. Taking all merchandise imports and exports of the United States for the twelve months, the total business is $4,269,953,582, while the favorable balance is $612,853,652, or 14 per cent, against 79 per cent in the case of iron and steel.

RAILROAD EARNINGS.

The following table is compiled from the monthly reports of the Interstate Commerce Commission, and cover all railroads in the United States having gross income of $1,000,000 or over per year The statements are per mile of road operated, and show gross revenue from operations, operating expenses and net operating revenue.

	1911-12			1912-13			1913-14		
	Revenue.	Expenses	Net.	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.
July ...	$1,025	$698	$327	$1.113	$750	$363	$1,161	$814	$348
Aug. ...	1,119	726	393	1,211	776	435	1,219	831	388
Sept. ...	1,137	725	411	1,206	775	430	1,237	832	405
Oct. ...	1,175	749	425	1,311	827	484	1,294	870	424
Nov. ...	1,093	734	360	1,213	806	407	1,163	824	339
Dec. ...	1,046	720	326	1,159	799	360	1,100	800	299
Jan. ...	932	728	203	1,087	803	284	1,005	776	229
Feb. ...	964	710	254	1,011	752	259	900	729	171
Mar. ...	1,051	746	305	1,081	799	282	1,076	782	294
April ..	974	717	257	1,068	806	263			
May ...	1,030	735	295	1,154	834	321			
June ...	1,075	737	339	1,140	803	337			
Totals.	$12.621	$8,725	$3,895	$13,754	$9,530	$4,225			

TIN PLATE OPERATIONS COMPARED.

A British Expert Compares Conditions and Practices in the United States and Wales.

AMERICAN TONNAGES WAGES 15% HIGHER THAN WELSH.

A report on the American tin plate trade has just been made by Ivor H. Gwynne, general secretary of the Tin and Sheet Millmen's Association, of South Wales, Mr. Gwynne having made quite a thorough study of the American tin plate trade. The following embraces the most important portions of the report.

There is nothing very new in the system of working in the sheet and tin plate mills of the United States, which are one- and two-pair mills. In the latest works there is one engine for eight or ten mills, and it is surprising to find that even when the ten mills are working, they do not seem to affect the speed of the engine in the slightest degree. The newest type of mill rolls are 28 in. body and 24 in. neck; and in the majority of mills there is a small perforated pipe running over the neck of the rolls with a continuous flow of water. The pipe is about the length of the neck, with about five small holes. In a large number of mills there is steam blowing on the body of the roll continually. It appears that the Trust claim this as their patent, and have been objecting to some of the firms using it. The same system was introduced some years ago at the Tirydail Works by Mr. Richard Rees. There is no question that this is an advantage so far as preventing the breakage of rolls, inasmuch as the steam has a tendency to keep the roll at the same temperature; if the temperature of the roll was lower than that of the steam, then it would have the effect of heating it; and if on the other hand the roll became overheated, the steam would have a cooling effect upon the roll. Employers make every effort to make the conditions as comfortable as possible, by providing means to keep the mill cool. While we know that our present blowers are an advantage to the men in the mill, we also realize that the cool air blowing continually upon the men from above, must be detrimental to the constitution, and may have the effect of bringing on stiff joints, headaches and rheumatism. While the Americans have cold air blown into the mills, it comes up from the floor, and the air travels through without affecting the men in the slightest degree. It also tends to drive all smoke and fumes to the roof. Another method of cooling the mill is by placing water pipes into the floor plates about 6 in. to 9 in. apart, and running cold water through them. In every mill, eight to nine hands are employed. In some mills there are two rollers, two doublers, two heaters, two behinders and one screw boy, and in this case the responsibility for each section is evenly divided, and these are known as "level-handed" mills, the earnings being equally divided according to their respective positions. This method of working is more prevalent among the men in the mills under the Trust. The usual custom, however, is to employ a roller and helper, doubler and helper, heater and helper, behinder and helper, or in some cases one helper between two behinders, and a screw boy.

Work at the Hot Mill.

The distribution of work at the hot mill is as follows:

Rolling.—The rollers' helper rolls the iron. The roller rolls the singles and matches them, so that they are returned to the heater on fours. The rollers' helper afterwards rolls the fours, and the roller works the eights or the finishing part.

Doubling.—The doublers' helpers draw the iron, and the heaters' helper places the singles back into one of the furnaces; one helper also assists the doubler on the packing when matching, and also looks after the furnace for heating the iron, and does the charging. The doubler doubles the fours.

Heating.—The heater and his helper work every other part, but the heater is held responsible for the furnace and the heat.

Catching.—The division of work in this connection is in accordance with the conditions. The behinder and helper do the behinding and greasing of necks either alternately, or as the conditions warrant.

The screw boy, in addition to working the screws, would also open the top and bottom sheet on the fours.

Whatever may be said of the output of America, the men do not work so hard as our men to turn out the output we do in

this country; and this is easily explained. Our men work five parts every heat; the American millman works two parts every heat, inasmuch as he does not work doubles. The average output in the American tin plate mills to-day on 30 gauge, is 11,000 to 12,000 lbs. in eight hours, and 10,000 lbs. of 31 gauge, other gauges in proportion. In fact some of the firms object to their men doing more than this, and this means on 30 gauge, according to our method of reckoning, about 100 to 107 boxes per eight hours. To take two particular orders which are worked in the American mills, and which will compare with the general orders in our mills in this country; 28 by 20, we work them 56 by 20, and they work out at 3½ pieces to the box. They work them 60 by 28 and work out at 2⅛ pieces to the box. To make it a little plainer, to have 12 boxes we should have to work 42 pieces; in America, to secure the same amount they would work 28 pieces. Another general order there was 27¼ by 22, and this would be worked 55 by 22 in our mills; in America they are worked 66 by 27¼, and the proportion in the number of pieces would be the same as that on the 28 by 20, in accordance with the superficial inches in the sheet. In regard to the extra weight in the piece due to the one-third additional sheetage in the piece, which must be considered when working in our mills, much of the strain necessary to work a piece of that weight in this country is dispensed with in the States, inasmuch as the foreplate is but a very few inches from the floor line, so that the roller does not raise the plates to the same height as our men do. The chief point, however, to account for the greater output in America, is the fact that they have a double set of men to each mill. There seems to be an idea in this country that the Americans work while in the mill at an exceptionally high speed, almost beyond human endurance. But this is not so. If anything, they take things as easily, if not more easily, than our own men do. There does not appear to be any attempt at driving, as we understand it, and the extra output is entirely due (in addition to the facts already mentioned) to the fact that they are continuously rolling, and that there are no stoppages between the parts or for charging. No sooner has the rollerman completed working his eighths, than the doubler's helper will have a pair of iron ready for rolling, and the roller's helper at once commences to roll his iron; when the iron has been moulded, the roller, doubler, and heater come along, and go on the singles and do the matching and so on. After every part there is a fresh gang of men before the rolls, and this avoids any stoppages taking place to attend to the fires, or for any other purpose which is necessary and cannot be avoided when there is only one set of men.

If we analyse this we shall at once see what accounts for the extra output. After working the iron in order to allow the doubler to charge and to put his fire right, etc., the mill is idle with us for at least five to seven minutes; then after each part there is a stoppage of a few minutes to attend to the fire or the grate, and taking an average of four minutes' stoppage between each part, and working five parts in each heat, this would mean a stoppage of 20 minutes each heat. The American millmen point out that they work from 38 to 42 pieces in 45 or 50 minutes. This would mean to our men 1 hour and 5 minutes to 1 hour and 10 minutes to work at the same rate, and in addition to this they have one part less to work than our men, which would mean at least 10 minutes, and still allowing for the time necessary to draw the extra number of pieces of iron required for the matching, inasmuch as by matching they dispense with the part known as doubles. So if we add this 10 minutes we have 1 hour 15 minutes to 1 hour and 20 minutes, and then only work at the rate that the millmen in the States work. The problem would naturally arise in the mind of a Welsh tin plate millman when working a heat in 40 minutes: How can the doubler heat his iron in this time? In America instead of charging a heat of 38 to 42 pieces or the equivalent to this when matching, they have from 130 to 150 pieces in the iron furnace continually; this to a very great extent solves the difficulty, inasmuch as the furnaces are large enough to permit of this, so that the iron remains in the furnaces not 40 minutes, but is there at least 1 hour and 20 minutes, and in some cases two hours before being rolled. Every effort is made to reduce, as far as possible, any strain upon the men in handling heavy bars, or performing laborious work. Another difficulty that would naturally arise in the minds of Welsh tin plate millmen when dealing with an output of 100 to 110 boxes in eight hours, would

be the condition of the rolls, but owing to the method of keeping the necks cold by a continuous flow of cold water American mills do not suffer from hot necks more frequently that we do with our present output.

Another point that may arise is the question of roughness appearing upon the surface of the rolls. With the output of the Americans it is only natural to expect this, and under ordinary circumstances this is very prevalent; in fact, they have suffered very much in the past from this evil, but the blowing of steam upon the body of the roll has brought about some improvement, and they also use a kind of stone which is called emery stone. This is fastened to a bar and held to the surface of the rolls for 5 or 10 minutes once or twice, or sometimes oftener if required, each shift, and this is considered at some works the duty of the roller with the assistance of his helper, while other firms engage men for this purpose. As a result of adopting this method roughness practically disappears. The lift of a roll in America is something similar to that of our own rolls in this country; especially is this the case where we use rolls of similar size. In the changing of castings America is far in advance of this country; the gantry or gantries [Mr. Gwynne uses this term for what we call a "traveling" crane.—Ed.] are in continued use. A millman would never think of handling anything with his hands apart from his tongs; even if the cross-bar in front of the rolls fell it would be replaced by the aid of the gantry. No millman is ever expected to assist in the changing of rolls or any kind of castings; in fact, the changing of mill rolls has become an art among the gang that does this kind of work. At one of the works they actually changed twenty pairs of rolls in one hour and fifty minutes, and put them ready for working, which meant less than six minutes per pair in taking the old rolls out and replacing them. This may appear incredible, but it is accomplished by the aid of machinery.

Wage Rates Compared.

Dealing with the rates of payment in America as compared with this country may appear rather complicated while the schedule of rates is based upon the ton of 2,240 lbs. Their work is all reckoned as 100 lbs. to the box, and is very easy to calculate. In all their calculations they adopt the metric system. [Mr. Gwynne obviously means "decimal", not "metric."—Ed.] Another feature prevalent amongst the Americans is to take the value of even their metals, such as iron, steel, tin, etc., at so much per pound. In reckoning up the amount of work per shift in the mills the total is at all times given in pounds. The average output is reckoned in pounds; 10,000 lbs. would mean 100 boxes of 100 lbs. In the following comparison of rates small fractions have been neglected, and it is based upon so much per ton of 2,240 lbs., including the amount paid to the whole of the men employed in the mill:—

Rates Per 2240 Pounds.

Gauge.	American. £ s. d.	Welsh. £ s. d.
8—11	0 17 7	0 15 0
12—13	0 18 2½	0 15 0
14—15	1 0 8	0 15 0
16—17	1 6 0½	0 15 0
18—20	1 8 8½	0 15 0
21—24	1 14 4	0 15 0
25—26	1 16 7½	0 15 0
27—28	1 17 10½	0 15 10
29	2 1 1½	0 17 10
30	2 1 1½	0 19 0½
31	2 2 9½	1 1 5
32	2 4 9½	1 4 0
33	2 7 0	1 7 6½
34	2 11 2½	1 10 5½
35	2 13 10½	1 13 9

Taking the average rate paid in America on the gauges from 8 up to and including 35 gauge, it works out at £1 16s. 1½d. per ton, whereas the average paid in this country is a fraction under 19s. per ton on the gauges mentioned, or a difference of 17s. 1½d. per ton. In order, however, to see the actual difference in the earning power of the mill as it really exists, it is necessary to dispense with the thicker and lighter gauges, inasmuch as we rarely work them in our mills, so that if we confine our comparison between rates paid upon the gauges 24 up to 33, this would give a better idea of the difference as it exists between the two countries, and we thus find that the average rate paid upon the gauges mentioned in America is £2 3s. 1d. per ton, as compared with £1 2s. per ton in this country, or a difference of £1 1s. 1d. per ton. Taking 29, 30 and 31 gauge, in America an average of £2 1s. 8d. per ton is paid, while in this country it is 19s. 5d. per ton, or a difference of £1 2s. 3d. per ton. [Of course this is the really vital comparison, as the tonnage outside of 29, 30 and 31 gauges is

extremely small, and it shows the American rates 115% above the Welsh.—Ed.]

Having dealt with the rates, it is only fair to mention that in the American mills there are nine men engaged each shift, as against four men in this country, but when we consider that they have a far greater output than we have (at least 85 to 100% above our output), the earning power is nearly double ours on the average. We have also to take into consideration that, strictly speaking, the conditions of employment are—a roller and helper, doubler and helper, heater and helper, behinder and helper, and if we compare the earnings of the roller, doubler, heater, and behinder in America with the roller, doubler, heater, and behinder in this country apart from helpers, we find the following result, taking 30 gauge as a fair basis, but it will be noticed that the rate paid the heater is above that paid the doubler:—

America.	*Wales.*
Roller—30 gauge.	Roller—30 gauge.
8/11½ per ton.	5/8 per ton.
Doubler,	Doubler,
8/10 per ton.	4/7 per ton.
Heater,	Heater,
9/7½ per ton.	4/4½ per ton.
Behinder,	Behinder,
4/7 per ton.	2/4½ per ton.

In addition to this the company provides a helper for the roller, and the company pays the helper 4s. 3½d. per ton in addition to what he pays the roller. The doubler, heater, and behinder pay their respective helpers out of the amounts provided in the schedule, and when we consider the additional output turned out in the American mills, the earning power of those men is far in excess of the amount received in this country. There are also additions to be made to this in special cases of working.

[The survival in Wales of the "crocodile" shear for shearing the finished packs has furnished much amusement to the American tin plate trade, the crocodile shear requiring that the pack be marked out, while the squaring shear, introduced in the United States at the outset, involves very much less work, and appears to be more accurate. Mr. Gwynne, however, reports adversely on the American method. At the same time he naively remarks that in the United States the hot millmen have no ambition to be promoted to the shearman's job, because the rate of pay is so much less—a natural result of the ease with which the American squaring shear is manipulated.—Ed.]

Cold Rolling Results Criticized.

There was nothing new about the American method of cold rolling, and the set on the plates is not equal to the usual set on the plates in this country. This may be due in a certain extent to the fact that the plates in the mills do not receive the same number of runs through the mill rolls as we give them. In discussing this point some of the men in the States pointed out that they had seen very good sets on some plates, but if there was one spot weaker than another in the American mills, it was the need for a better set in the cold rolls. In regard to what are termed the blue annealed plates. [This refers to sheets; no connection with tin plates.—Ed.] There are two methods. At one of the works the sheets after having been drawn by the millmen to a certain length were replaced in the furnace and given one run through the mill rolls, and were then carried by rollers to a pair of rolls about the size of our tinhouse rolls in diameter, and of the length required to deal with the size of sheets worked. In another works the same kind of work was done, but in this case they were drawn to the desired length in the mill, and afterwards placed into a furnace heated by oil, and from this furnace, after being annealed, they were placed into about six pairs of equal sized rolls to the tinhouse rolls just mentioned, which were placed within a few inches of each other. Having passed through these rolls the plate had a most beautiful blue surface. They were worked in various sizes, which must be of great advantage for any kind of fine work.

Annealing.

In this department the Americans are far in advance of our own country. They have very large furnaces and very large pots, and a very pleasing feature about the annealing in America is the fact that all the donkey work which still prevails in our works and the means of charging by the trolley are entirely obviated by the removing of stands and lifting up the covers. The plates are packed on large stands which take hundreds of boxes, and the gantry [traveling crane] removes the covers and replaces them when required, and the pót is then removed into the furnace by motor power. The American method of annealing is also

in advance of our method. Instead of placing plates in a furnace as we generally do (heating them to the required heat and afterwards removing them practically at that heat to the open air), they have a very long furnace which contains from three to five of the pots; they are placed in the first degree of heat and allowed to remain there for a time; they are afterwards removed for a time to a higher temperature, and again removed to the temperature required for annealing. They are again removed to the second temperature and from there to the first again, so that by the time the plates leave the furnace they have been allowed to cool down to a very great extent, and this process has been carried on without the plates being subject to the possibility of cold air. To change our present method and adopt the American method would be very costly, yet it would be well if employers considered the matter in their own interests.

Pickling.

There was nothing very new about the pickling, the machines being very similar to our own. The general machine used was one in which the plates were kept stationary and the acid moved by means of a huge block of wood about 18 in. or 2 ft. square. This was worked backwards and forwards the length of the vat, and by this means the acid was driven between and over the plates. The plates pickled were very clean and clear, but there is no great advantage in this over our own method, though it is stated to be cheaper than working them through the acid as we do. In this case again all the removing of cages with the plates was done by the gantry. In fact, there was no pushing or pulling of anything by the pickler and his gang. [This is quite weird as applied to the common practice.—Ed.]

Tinning.

To a very great extent American tin-house machines are very much like what we have. They work three 28 by 20 plates at the same time and three and four 20 by 14. It was evident that there was a larger quantity of tin placed on the plates than we generally use, with the exception possibly of our best charcoal. There are a number of women assorters, but it was only in this department that there appeared to be any female labour at all at tin-plate works. There are still at some of the works, but at very few, men assorters. The men at the tin-house department have not succeeded so well as the mill men in retaining their high rate of wages. This is due more especially to the introduction of foreign labour.

Galvanizing.

There is very little difference between the galvanizing departments in either country, with the exception that at many of the American works the pots are heated by oil. They turn out an excellent galvanized sheet, special attention being paid to keeping the sheet well set. They have several different kinds of machines for pressing them and securing as far as possible a uniform surface. They have some very good corrugating machines. Very few mills use the press corrugator. The corrugating is done by means of a roll and the despatch is far in excess of our general method.

Americans Strive to Please.

There is one thing that cannot but attract the notice of a stranger when going through American tin plate works; it is that every attempt is made to meet the needs of the market. It is to be feared that we are even to-day too conservative in our views upon this point. In the past we confined ourselves to some particular kind of article, and continued to place this upon the market without inquiring whether it was not possible that something could be done to make it of greater utility and to reduce the cost to the consumer. Any suggestion for reducing labour without reducing the number of hands was received with open arms by the American employer. There is not enough encouragement given to workmen in this direction in this country.

THE SHEET AND TIN PLATE MILLS.

Full Lists of Regularly Operative Mills.

Appended are complete lists of the regularly operative sheet and tin plate mills in the country. We have entirely excluded from these lists mills which are not regularly operated. This does not mean that all the mills listed are in operation on any one day, but plants which have not been operated at all in recent months are entirely excluded. It may be that some plants not here listed will in future become active; there are some in fairly good physical condition which in certain trade conditions may be put in operation. The exclusion of plants not recently operated is made in the case of the American Sheet & Tin Plate Company as well as in the case of the independents. The leading interest has several sheet and tin plate plants, not here listed, which could be put into operation at a few week's notice and at no very great outlay for refurnishing, while it has some others which are partially dismantled, though still in physical existence.

The common trade distinction between a "tin mill" and a "sheet mill" lies in the method of operation and in the wage scale paid, the tin mill wage scale involving only the smaller sizes. Thus what is known as a "tin mill" may be engaged in making sheets which will be converted into black plates for tinning, or it may be engaged in making ordinary sheets of the smaller sizes, which are customarily called "tin mill black sheets", the only distinction between these and "sheet mill sizes" of black sheets being in the size.

In order to reduce the uncertainty arising from this ambiguity, we introduce the term "tin plate mills", a tin plate mill being one which actually furnishes raw material for tin plate making. Such plants are placed in one list. The ordinary sheet plants, on the other hand, frequently have one or more tin mills, simply for rolling the smaller sizes of sheets. These are simply listed as sheet mills, but the letter "T" is appended to show that one or more of the sheet mills in the plant are classified as "tin" mills. Similarly we designate by the letter "J" such sheet plants as contain one or more jobbing mills.

The number of independent sheet mills, as is well known, has been increasing rather rapidly. Available statistics do not show accurately the growth in capacity, however. For many years there have been resumes of the number of independent sheet mills, but for earlier years these statements included all mills in physical existence, whether financially fit or not, whereas in our present list we include only regularly operative mills. Below we tabulate the statements which have been made, annually for the first of each year from 1903 to 1911 inclusive. Next we give the total of operative mills shown in our list published in the **Digest** for November, 1911, also the total of the present list. It will be observed that some years showed large decreases in the number of mills, due to plants becoming defunct, while from January 1, 1911, to date, there has been apparently only a small increase in the total number whereas a great many new mills have been built during the period. The fact is that our present list excludes a large number of mills which were listed as in existence on January 1, 1911.

Number of Independent Sheet Mills.

January 1st.

1903	136
1904	155
1905	166
1906	124
1907	124
1908	141
1909	171
1910	198
1911	240
November 1, 1911	254
June 1, 1914	281

American Sheet & Tin Plate Company. Sheet and Jobbing Mills.

	Mills	Galv. kettles
Aetna-Standard	J 1	..
Dover, Canal Dover, O.	11	4
Gary, Gary, Ind.	J 20	6
Guernsey, Cambridge, O.	11	8
Hyde Park, Hyde Park, Pa.	6	..
Leechburg, Leechburg, Pa.	11	..
Mercer, Sharon, Pa.	8	..
New Philadelphia, New Philadelphia, O.	J 12	..
Old Meadow, Scottdale, Pa.	8	..

Saltsburg, Saltsburg, Pa.	4	..
Scottdale, Scottdale, Pa.	9	6
Vandergrift, Vandergrift, Pa.	37	22
Wellsville, Wellsville, O.	10	..
Wood, McKeesport, Pa.	12	..

Total: 14 plants, 160 sheet and jobbing mills; 51 galvanizing kettles.

ALSO: 5 light plate mills, at Aetna-Standard, Gary (2), and Wood works.

Independent Sheet Plants.

(Including sheet mills, jobbing mills (J) and tin mills (T) except tin mills which actually tin their product.)

		Mills	Galv. kettles
Allegheny Steel Co., Brackenridge, Pa.	JT	15	..
American Rolling Mill Co., Middletown, O., East Works, 11 mills; Middletown works, 4; Zanesville works, 6; total	J	21	6
Apollo Steel Co., Apollo, Pa.		6	3
Brier Hill Steel Co., Youngstown, O.; two plants at Niles, O.	T	20	9
Canonsburg Steel & Iron Works, Canonsburg, Pa.	T	6	.
Canton Sheet Steel Co., Canton, O.	T	7	4
Deforest Sheet & Tinplate Co., Niles, O.	JT	10	6
Fannin & McCullough Sheet Mill Co., Cincinnati, O.; works, Ashland, Ky.		6	2
Follansbee Bros. Co., Pittsburgh; works, Follansbee, W. Va.,		4	..
Inland Steel Co., Chicago works, Indiana Harbor, Ind.	TJ	18	8
La Belle Iron Works, Steubenville, O.	J	10	3
McCullough Iron Co., Wilmington, Del.		4	2
Massillon Rolling Mill Co., Massillon, O.	T	10	2
National Enameling & Stamping Co., St. Louis, Mo.; Granite City works, 4 sheet mills and 10 tin, (excluding 10 tin, product of which is tinned)	T	14	..
Newport Rolling Mill Co., Newport, Ky	T	10	5
Parkersburg Iron & Steel Co., Parkersburg, W. Va.	T	6	2
Phillips Sheet & Tin Plate Co., Weirton, W. Va.	T	10	..
Portsmouth Steel Co., Portsmouth, O.	J	8	..
Reeves Manufacturing Co., Canal Dover, O.	T	6	3
Seneca Iron & Steel Co., Buffalo, N. Y.		7	3
Stark Rolling Mill Co. Canton, O.	J	18	8
Trumbull Steel Co., Warren, O..		6	2
West Penn Steel Co., Brackenridge, Pa	JT	10	..
Wheeling Steel & Iron Co., Wheeling, W. Va.	J	2	..
Whitaker-Glessner Co., Wheeling, W. Va.; Wheeling, 9; Martins Ferry, O., 6; total		15	7
Alan Wood Iron & Steel Co., Conshohocken, Pa.		4	.
J. Wood & Bros. Co., Conshohocken, Pa.	J	4	.
Youngstown Iron & Steel Co., Youngstown, O.	J	10	3
Youngstown Sheet & Tube Co., Youngstown, O.		14	6

Totals: 29 interests, 33 plants, 281 sheet, jobbing and tin mills, 84 galvanizing kettles.

American Sheet & Tin Plate Company.
Tin Plate Mills in Operative Condition.

	Mills.
American, Elwood, Ind.	28
Cambridge, O., (no tinhouse)	7
Chester, W. Va.	7
Crescent, Cleveland O.	6
New Castle, New Castle, Pa.	20
La Belle, Wheeling, W. Va.	10
Laughlin, Martins Ferry, O.	23
National, Monessen, Pa	25
Pennsylvania, New Kensington	8
Pittsburgh, New Kensington	8
Sabraton, Morgantown, W. Va.	10
Farrell, Farrell, Pa.	20
Shenango, New Castle, Pa.	30
Total (13 plants)	202

Independent Tin Plate Plants.

(Including only mills which tin their product).

	Mills.
Carnahan Tin Plate & Sheet Co., Canton, O.	7
Follansbee Bros. Co., Pittsburgh; works, Follansbee, W. Va.	6
Griffiths Charcoal Iron Mills, Washington, Pa.	2
Jones & Laughlin Steel Co., Pittsburgh; Aliquippa works, Woodlawn, Pa.	24
Lalance & Grosjean Mfg. Co., Harrisburg, Pa	5

McKeesport Tin Plate Co., McKeesport, Pa. 22
National Enameling & Stamping Co., St. Louis, Mo.; works, Granite City, Ill. (approximate; exclusive of about 10 "tin" mills, product of which is not tinned) 10
Phillips Sheet & Tin Plate Co., Weirton, W. Va.; Clarksburg, W. Va., works 12; Weirton works, 10; Pope works, Steubenville, O., 12 mills; total 34
Standard Tin Plate Co., Canonsburg, Pa. 10
Trumbull Steel Co., Warren, O. 6
N. & G. Taylor Co., Philadelphia; works, Cumberland, Md. 8
Washington Tin Plate Co., Washington, Pa. 6
Wheeling Sheet & Tin Plate Co., Yorkville, O. 10
Whitaker-Glessner Co., Wheeling, W. Va. 5
Wilkes Rolling Mill Co., Sharon, Pa. 1

Total: 15 interests; 17 plants; 156 mills.

SHEET AND TIN PLATE MILLS BEING BUILT.

Follansbee Bros. Co., Pittsburgh; works, Follansbee, W. Va., 3 sheet mills.
Jones & Laughlin Steel Co., Aliquippa works, Woodlawn, Pa., 8 tin plate mills.
Trumbull Steel Co., Warren, O., 5 sheet and 5 tin plate mills.
Western Reserve Steel Co., Warren O., 6 sheet mills and three galvanizing pots.

TOPICAL TALKS ON IRON.

XV. The Use of Old Material.

It is a popular superstitution that enormous quantities of old material are consumed in the open-hearth steel furnace. Misunderstandings arise more often from misconceptions of terms than from any other one cause. Scrap is scrap, one may say. Not at all. There are two broad classifications, one commonly designated by the name "new scrap" and the other by the term "old material". Critically speaking the terms are not good, for in strict terms "new scrap" would by a student of English be described as material which has newly become scrap, while "old material" would not necessarily mean scrap at all.

In the trade there is no confusion. "New scrap" is iron or steel which has become scrap in the process of manufacture of a finished or partly finished article of iron or steel, while "old material" is scrap comprising iron or steel which has passed through a longer or shorter period of use and is fit for re-use only by heating and reforming or by actual melting.

The popular superstition, quite prevalent although far from universal, enormous quantities of old material are used in the open-hearth steel furnace arises from confusion of the terms "scrap" and "old material". One hears that a basic open-hearth steel plant runs on 50% scrap and 50% pig iron, or 60% scrap and 40% pig iron and concludes that the plant buys the "scrap" in the form of old material. This is not the case at all.

There are, of course, no statistics of the production or outcome of old material, though scrap dealers can make some sort of estimates, due to their knowledge of the trade. Before falling back upon any such attempts at estimating, let us consider the fact, which may be new to many of our readers, that there are some statistics of the production of "new scrap". They have never been published as such, but when there are trustworthy official statistics from which we can draw fairly precise conclusions, it is not unfair to say that there are statistics of the production of new scrap.

At this the necessary statistics for 1913 are not available. Using 1912 statistics we find that the production of steel ingots was 30,284,682 gross tons, while the production of "rolled steel" was 23,019,259 gross tons. Included in rolled steel was all the tonnage of finished rolled steel commonly regarded as such, rails, plates, structural shapes, sheets, black plates for tinning, rods, etc. To make the statistics complete there was included the rolled forging billets and blooms as well as the billets, sheet bars, etc., which were exported. In other words, the principle was to include everything that was rolled, weighed in the form in which the material was last rolled, with the understanding, of course, that the material

was not weighed as it left the rolls, but after shearing, the unmerchantable ends of rails, the sides and ends of plates, etc., not being weighed. Naturally sheets and black plates were taken rather than sheet bars, and rods rather than either billets or wire.

Substantially the entire tonnage of steel ingots produced was used in the manufacture of the rolled steel reported, and there is a difference of no less than 7,265,423 gross tons. Now, the great bulk of that material simply became scrap. A small portion was oxidized in the process of rolling, becoming "mill scale" which goes to the blast furnace to be used with ore in making fresh pig iron. Hardly any was actually lost. It is certain that more than 6,000,000 tons of the material, perhaps 6,500,000 tons, became "new scrap". That item we consider a piece of statistics; only to a small extent is it an estimate.

It is obvious that in the conversion of this rolled steel into products ready for use still more new scrap was produced. The figures of rolled steel included plates in the form in which they go to car shops, boiler shops, etc., sheets and tin plates going to stamping works, etc., rods going to chain and wire drawing departments, bars going to nut and bolt makers, and so on. In all these instances there is additional new scrap produced, and it is well within the mark to say that more than 7,000,000 gross tons of new steel scrap was produced in 1912, material which never passed through a period of use.

One can easily get a line on the amount of scrap consumed by the basic open-hearth steel plants. They usually use some ore, and the tonnage of ingots produced very closely approximates the amount of scrap and pig iron charged, the ore practically making up for the metal lost in the slag. The quantity of basic open-hearth ingots and castings produced in 1912 was 19,641,502 gross tons, while the production of basic pig iron was 11,417,886 tons, the difference being 8,223,616 tons. That, substantially, was the amount of scrap consumed.

A very limited tonnage of new steel scrap is consumed by acid open-hearth furnaces, Bessemer steel works, and in busheling and other operations in the iron mills. The total production of acid open-hearth steel ingots and castings in 1912 was only 1,139,221 tons.

With more than 7,000,000 tons of new steel scrap produced, nearly all of it going into the basic open-hearth furnaces, and a requirement of only about 8,223,616 tons for the latter, it is safe to conclude that not more than 2,000,000 tons of old material, at the very outside, perhaps not as much as 1,500,000 tons, was consumed in 1912 by the basic open-hearth furnaces, or less than one-fourth the amount of "scrap" consumed by them. This was a relatively small quantity, seeing that about 55,000,000 tons of iron ore and about 30,000,000 tons of pig iron were produced at the same time.

Members of the scrap trade know quite well that they did not sell 2,000,000 tons of old material to the open-hearth furnaces in 1912. Indeed, a very considerable tonnage of the old material purchased by steel works is bought direct.

The quantity of old material used by the basic open-hearth steel works, less than 2,000,000 tons, does not by any means represent the total outcome of old iron and steel. Where there are open-hearth steel works they are sharp competitors for most of the old material which comes out, but they do not get all of it. There is a considerable tonnage of old material which is simply rerolled, including axles and rerolling rails in particular. The iron mills use a great deal of old material. Thus, the production of "rolled iron" in 1912 was reported at 1,637,582 tons, whereas the production of gray forge pig iron, the only kind used by iron mills, except an altogether negligible quantity of Bessemer, was given at only 469,183 tons, and a very considerable part of that was used by foundries, particularly cast iron pipe foundries. The rolling mills probably used close to 1,500,000 tons of old iron and steel.

Then there is a still larger class of consumers, the iron foundries. It was just remarked that "where there are open-hearth steel works" they are sharp competitors for scrap, but old material is coming out almost everywhere over the country, and scrap as a rule does not travel far. The open-hearth steel works are confined to small areas, while the iron foundry is almost ubiquitous. Indeed, a foundry is frequently located at an isolated point merely because there is a good supply of scrap to be had there. These foundries buy grades of pig iron known as "softeners", being high in silicon, and the merit of a "softener" is the number of tons of scrap which one ton of it will "carry".

Estimates have been made by experts that as a rule the foundries are using more

COMPARISON OF METAL PRICES.

	Range for 1912.		Range for 1913.		Range for 1914.		Closing
Pig Iron.	High.	Low.	High.	Low.	High.	Low	May 29,
Bessemer, valley	17.25	14.00	17.25	14.25	14.25	14.00	14.00
Basic, valley	16.50	12.25	16.50	12.50	13.25	12.50	13.00
No. 2 foundry, valley	18.00	13.00	17.50	13.00	13.25	13.00	13.00
No. 2X foundry, Philadelphia	18.50	14.75	18.50	14.50	15.00	14.50	14.50
No. 2 foundry, Cleveland	17.75	13.25	17.75	13.50	14.25	13.25	14.25
No. 2X foundry, Buffalo	17.25	13.50	18.00	13.00	13.75	12.50	13.00
No. 2 foundry, Chicago	18 00	14.50	18.00	14.00	14.75	14.00	14.00
No. 2 Southern, Birmingham	14.00	9.75	14.00	10.50	10.75	10.50	10.50
Scrap Iron and Steel.							
Melting steel, Pittsburgh	16.25	12.50	15.00	10.75	12.00	11.00	11.75
Heavy melting steel, Chicago	14.00	10.75	13.25	9.00	11.00	9.00	10.00
No. 1 R.R. wrought, Pittsburgh	16.25	13.00	15.75	11.50	12.75	11.50	11.75
No. 1 cast, Pittsburgh	15.25	12.35	15.00	11.50	12.25	11 50	12.25
Heavy steel scrap, Philadelphia	17.00	11.75	14.75	9.75	11.25	9.75	10.25
Iron and Steel Products.							
Bessemer rails, mill	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Iron bars, Pittsburgh	1.65	1.25	1.65	1.35	1.35	1.25	1.25
Iron bars, Philadelphia	1.67½	1.22	1.67½	1.22½	1.27½	1.22½	1.22½
Steel bars, Pittsburgh	1.40	1.10	1.40	1.20	1.20	1.12½	1.12½
Tank plates, Pittsburgh	1.50	1.10	1.50	1.20	1.20	1.10	1.10
Structural shapes, Pittsburgh.	1.50	1.10	1.50	1.20	1.25	1.12½	1.12½
Grooved steel skelp, Pittsburgh	1.45	1.15	1.45	1.15	1.20	1.15	1.20
Black sheets, Pittsburgh	2.25	1.80	2.35	1.80	1.95	1.80	1.85
Galvanized sheets, Pittsburgh	3.40	2.80	3.50	2.80	2.95	2.75	2.75
Tin plate, Pittsburgh	3.60	3.30	3.60	3.40	3.40	3.30	3.30
Cut nails, Pittsburgh	1.70	1.50	1.70	1.60	1.60	1.60	1.60
Wire nails, Pittsburgh	1.75	1.55	1.80	1.50	1.60	1.50	1.50
Steel pipe, Pittsburgh	79%	81%	79%	80%	79½%	80%	80%
Connellsville Coke at ovens.							
Prompt furnace	4.25	1.80	4.25	1.75	2.00	1.75	1.75
Prompt foundry	4.50	1.90	4.50	2.40	2.50	2.40	2.40
Metals—New York.							
Straits tin	51.05	42.05	50.70	36.75	41.12½	31.55	31.55
Lake copper	17.80	14.15	17.00	14.50	15.50	14.25	14.37½
Electrolytic copper	17.75	13.95	16.87½	14.12½	14.87½	14.09	14.15
Casting copper	17.65	13.75	16.62½	13.87½	14.65	13.87½	13.95
Sheet copper	23.90	19.00	22.00	19.75	20.25	19.25	19.25
Lead (Trust price)	5.10	4.00	4.75	4.00	4.15	3.80	3.90
Spelter	7.65	6.45	5.65	5.10	5.50	5.00	5.15
Cooksons antimony	10.50	7.12	9.00	7.25	7.37½	7.15	7.30
Aluminum 98-99%	28.00	18.50	27.12½	18.50	19.00	17.75	17.87½
Silver	64⅛	54¼	62⅝	56⅛	59⅛	56⅛	57.00
St. Louis.							
Lead	5.02½	3.90	4.72½	3.85	4.10	3.65	3.80
Spelter	7.50	6.25	5.85	4.95	5.35	4.85	4.97½
Sheet zinc (f.o.b. smelter)	9.00	8.00	9.00	7.00	7.50	7.00	7.00
London.	£	£	£	£	£	£	£
Standard tin, prompts	233	183¾	232	166½	188	142½	143
Standard copper, prompts	80⅛	60⅛	77	61¾	66¾	62½	63
Lead	23¾	15⅛	21½	15⅝	20⅜	18	19⅛
Spelter	27⅝	25	26¼	20¼	21¾	21⅛	21½
Silver	29⅛d	25⅝d	25⅛d	25⅛d	27¼d	25½d	26d

COMPARISON OF SECURITY PRICES.

Railroads.	Range for 1912. High.	Low.	Range for 1913. High.	Low.	Range for 1914. High.	Low.	Closing. May 29,
Atchison Top. & Santa Fe...	111¾	103¼	106⅝	90¼	100⅝	91⅜	97
Atch. Top. & Santa Fe, pfd.	104¼	101⅜	102¼	96	101⅛	97¼	100
Baltimore & Ohio	111⅞	101¼	106⅛	90⅝	98⅛	87¼	91¾
Canadian Pacific	283	226½	266¾	204	220½	186⅜	195¼
Chesapeake & Ohio	85¼	68¼	80	55⅛	68	48¼	52
Chicago, Mil. & St. Paul	117⅛	99⅜	116¼	96¾	107⅛	94⅛	100⅛
Erie R. R.	39⅛	30	32½	20¼	32½	25¾	29
Great Northern, pfd.	143⅞	126	132⅛	115⅛	134¾	119	124⅛
Lehigh Valley	185¾	155⅞	168⅜	141¼	156¼	132¼	139¼
Louisville & Nashville	170	138	142¼	126¼	141⅞	131¼	137
Missouri, Kansas & Texas ...	31⅝	25½	29⅛	18⅛	24	14¾	17½
Missouri Pacific	47¾	35	43⅝	21¼	30	15¼	18⅝
New York Central	121⅞	106⅛	103¾	96⅜	96⅝	86⅝	92½
N. Y., N. H. & Hartford ...	142¼	126	129⅞	65⅝	78	65¼	67
Northern Pacific	131½	115⅜	122⅝	101¾	118½	106½	111
Pennsylvania R. R.	186⅞	119⅞	123¾	106	115½	108¼	111⅜
Reading	179¼	148⅛	151⅜	151⅜	172¼	157⅛	166
Rock Island	30½	22⅜	24⅝	11⅝	16⅝	2½	3
Southern Pacific	115½	103½	110	83	99½	86¼	94⅞
Union Pacific	176¾	150¾	162¼	137¼	164⅛	148⅞	157⅞
Wabash	9½	3¾	6	2	4⅜	⅞	¾
Industrials.							
Amalgamated Copper	92¾	60	80½	61	78⅛	68¼	72¾
Am. Beet Sugar	77	46½	50¼	19¾	28⅜	19⅝	24⅞
American Can	47⅜	11¼	46⅝	21	35⅛	22⅞	25½
American Can pfd.	126¼	90⅝	129½	80½	96	87¼	90¾
Am. Car & Foundry	63⅜	49⅜	56⅜	36½	53½	44⅛	50⅝
Am. Cotton Oil	60¼	45½	57⅜	33½	46½	37½	41½
Am. Locomotive	47½	31¾	44½	27	37¼	28	31⅞
Am. Smelting & Refin'ng	91	66½	74¾	58½	71⅝	57	63⅜
Brooklyn Rapid Transit	94½	76¾	92¾	83¾	94¼	87½	93¼
Chino Copper	50⅜	25	47⅝	30⅜	44	37	41⅜
Colo. Fuel & Iron Co.	43¾	23⅛	41½	24½	34½	24	28
Consolidated Gas	149½	135¾	142⅜	125⅛	139½	1 7¼	128
General Electric	188½	155	187	129¾	150⅝	140	149
Interborough Metropolitan ...	22	16¼	19⅝	12⅜	16⅜	13¼	14½
International Harvester	126⅞	105¼	111½	96	113½	100¾	108¼
International Steam Pump ...	34	12	18½	4½	9⅞	6⅛	6½
Lackawanna Steel	55½	28	49⅞	29⅞	40	32	32
National Lead	68¼	51⅛	56¼	43	52	45	47
Ray Consolidated Copper	24⅛	16	22	15	22½	17¾	21½
Republic Iron & Steel	35⅛	15¾	28⅜	17	27	20	23¾
Republic Iron & Steel, pfd...	93⅜	64½	92¼	72	91¼	80	88
Sloss-Sheffield	53¾	39¼	45½	23	35	25	26
Texas Co.	130⅝	81	132½	89	149⅞	128	145
U. S. Rubber	67⅞	45¼	69½	51	63	52¼	58½
U. S. Steel Corporation	80¾	58¼	69⅛	49⅞	67¼	56	63
U. S. Steel Corporation, pfd.	117	107¼	110¾	102½	112¾	106½	109¾
Utah Copper	67½	52½	60⅝	39⅝	58⅜	48⅞	56⅛
Va.-Carolina Chem.	57¼	40¾	43⅛	22	34⅞	25¾	29
Western Union Telegraph ...	86¼	72	75⅛	54⅛	66⅞	57¾	62

scrap than pig iron, yet the production of foundry and malleable pig iron in 1912 was about 6,000,000 tons. The foundries, then, might be using more than 6,000,000 tons of scrap in a year, and of course that is all old material, except such scrap as the foundries themselves produce.

Inside estimates of the consumption of old material would be: basic open-hearth steel furnaces, 1,500,000 tons; rerolling mills, 250,000 tons; iron mills, 1,250,000 tons; iron foundries, 3,000,000 tons; total, 6,000,000 tons.

Outside estimates would be: open-hearth steel furnaces, 2,000,000 tons; rerolling mills, 400,000 tons; iron mills, 1,400,000 tons; iron foundries, 5,200,000 tons; total, 9,000,000 tons.

To combat the popular superstition mentioned at the outset, the open-hearth steel works, consuming some 8,250,000 tons of scrap in 1912, consumed only 1,500,000 to 2,000,000 tons of old material, while 4,500,000 to 7,000,000 tons of old material was taken by other consumers.

This study has a very practical bearing: There are certain views based upon this superstition that are going to be proved erroneous. One is that there is hardly any need to build blast furnaces; the outcome of old material increases so rapidly that pig iron will not be needed. The view appeared to be supported by that fact that for years basic open-hearth furnaces were built, and always found the scrap needed, but one thing they were doing was to consume new scrap which had formerly gone into the Bessemer converter. As the production of Bessemer steel increased the supply of new Bessemer steel scrap increased, but in recent years the production of Bessemer steel has decreased.

Another view is that consumers of scrap outside of the open-hearth furnaces cannot compete with the steel producers for old material. They can to a large extent, because they can locate where much of the scrap arises, at several dollars a ton freight to the nearest open-hearth steel plant.

SPECIAL PIG IRON STATISTICS FOR 1913.

The Bureau of Statistics of the American Iron and Steel Institute has compiled additional statistics of pig iron production in 1913. The original statistics were issued the middle of February, giving the geographical distribution of the output and a partial segregation into grades, together with a statement of the merchant output. In March the full statistics of production by grades were given.

The additional statistics now issued slightly revise the figures showing the merchant and steel works production respectively, and they show the distribution by grades of the merchant output. They also show the quantities of Bessemer and basic iron separately which were delivered in molten condition. The figures are summarized below. Comparisons with previous years cannot be made, inasmuch as the statistics now given represent a new departure.

Merchant Pig Iron Production in 1913, Gross tons.

Bessemer and low phosphorus..	1,203,680
Basic	1,909,279
Foundry and ferrosilicon	5,084,952
Malleable	989,241
Forge	238,361
Spiegel and ferromanganese	98,372
Total	9,523,885
Produced by consumers	21,442,267
Total output	30,966,152

The following table shows, irrespective of whether the iron was produced for sale or consumption, the distribution of Bessemer and basic iron as to its being delivered molten or otherwise, the latter including, of course, sand cast, machine cast, chill cast or direct casting iron.

	Bessemer.	Basic.
Molten	7,823,317	8,915,179
Otherwise	3,766,796	3,621,514
Total	11,590,113	12,536,693

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THE SITUATION.

The rate of pig iron production dropped from 26,100,000 tons a year on May 1st to 24,350,000 tons on June 1st, a decrease of seven per cent. The rate of finished steel production dropped from about 60 per cent of capacity to little if anything over 50 per cent. The average price of northern pig iron declined almost 25 cents, southern iron not changing. The average price of finished steel declined about 65 cents a net ton.

The condition at the close of May was one of almost complete stagnation in the iron and steel markets, with selling prices at about the cost level. In two months prices have declined while through the decreasing rate of production the cost has increased.

The merchant furnaces have a considerable tonnage of business on their books, but it is chiefly in the form of undelivered tonnages against contracts written to expire June 30th. The steel mills have a fairly large tonnage on books in the aggregate, but the deliveries of such tonnage are spread far into the future, and this tonnage alone would not ensure operations at an average of even 30 per cent of capacity over a period of months. Of orders which can be shipped at once the mills have very little, and thus as a rule rolling schedules are being made up from week to week, or even from day to day in some instances.

The Future.

Six months ago, when the reduced tariff was new, and when the opportunity of voters to change the national administration seemed indefinitely far in the future, it constituted a definite and interesting prediction to assert a belief that at some time in the future the American iron and steel industry would become very prosperous. It is not so to-day; everyone has come to realize that in the not extremely distant future a period of great prosperity is in store for the industry. The question to-day is merely that of time, the number of months which will elapse. The latest time set for the inception of an important and prolonged improvement in the early part of 1915. There are many, again, who believe that an important improvement will begin so early in the second half of this year as to make the second half much better, in point of tonnage and profits, than the first half is proving to be. Finally, there are those who for several weeks have been expecting a moderate improvement in tonnage, though not in prices, in June. Writing at the close of the first week in June, we think we have found in this past week concrete evidences that such an improvement actually has commenced, and expect that our report for the month of June, to be written a month hence, will class the month as better from a market standpoint than either April or May.

Trends in the Trade.

The tendency at the moment is for pig iron inquiry, and actual buying, to increase. In part this is merely seasonal, as many contracts naturally expire at the end of June, but it is nevertheless a significant trend because most contracts are underspecified.

The trend in steel buying is distinctly upward, though not sharply so. Instances of increased buying are fairly numerous, while at no point are recent decreases reported.

Neither pig iron nor steel prices are trending upwards. It is possible that increased buying of pig iron will bring slightly lower prices though the production cost of even the best positioned furnaces has been so closely approximated already that declines cannot be more than fractional. In steel products the trend of prices is not clearly downward, though the entire market can hardly be classed as stationary, and it is quite clear that there is no advancing tendency at any point.

As to production, there is hardly any reason to suppose that if buying of steel did not increase over the May rate there would be any further decrease in steel production. A further decrease in pig iron production, however, should be considered quite probable in such circumstances, for the indications are that of late somewhat more pig iron has been made than is warranted by the current rate of foundry and steel mill operations.

Pig Iron.

Relatively speaking, May was a much more active month than April in pig iron buying, but the lots taken were small and the aggregate tonnage sold was far below

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the amount produced. Stocks have doubtless accumulated at some points. As already noted, there is increased inquiry in the beginning of June, and some signs that a fair buying movement will occur, for third quarter and second half. Of particular interest is the purchase of 75,000 tons of southern iron by the United States Cast Iron Pipe & Foundry Company about June 1st. The reports are that this interest long endeavored to buy at $10, Birmingham, when the market was being rigidly held at $10.50, and finally compromised at $10.25. Often this interest has been able to call the turn in pig iron, and by reason of the magnitude of its purchases actually to bring about a turn when the psychological moment had arrived. It is a notable fact, attested by almost all the statistics, that southern pig iron, in both advances and declines, normally leads northern iron by from two to six weeks.

The general price movement in pig iron is shown by the following statement of the movement of our **composite pig iron:**

	On first of month.	Change during month.
January (1913)	$17.450	—17.5c
February	17.275	—33.0
March	16.945	—32.0
April	16.621	—61.0
May	16.015	—76.5
June	15.250	—55.0
July	14.700	—25.0
August	14.450	+17.5
September	14.625	+15.0
October	14.775	—20.0
November	14.525	—47.5
December	14.050	—50.5
January (1914)	13.545	—12.0
February	13.425	+45.0
March	13.875	— 2.5
April	13.85	0.0
May	13.85	—17.5
June	13.675	

The announcement on May 1st of Lake Superior ore prices for 1914 season, at reductions of 65 cents on Bessemer and 35 cents on non-Bessemer ores from the 1913 schedule, can hardly be regarded as re-

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered).

	Bessemer, Valley	Basic, Valley	No.2 fdy, Valley	Basic Phila.	No. 2 Phila.	No. 2 X fdy, Buffalo.	No. 2 fdy Cleveland.	No. 2 fdy Chicago.	No. 2 fdy Birmingham.	Ferro-manganese.*	Furnace coke†
1913—											
Jan.	17.25	16.50	17.50	18.00	18.49	17.50	17.75	18.48	13.72	65.00	3.85
Feb.	17.25	16.43	17.12	17.75	18.23	17.22	17.44	17.87	13.46	65.00	2.60
Mar.	17.20	16.14	16.60	17.50	17.81	16.79	16.75	17.75	13.04	64.00	2.47
April	17.00	15.87	15.66	17.00	17.49	15.96	15.41	17.60	12.60	61.00	2.20
May	17.00	15.25	14.73	16.50	16.77	15.58	15.56	16.67	11.74	61.00	2.15
June	16.34	14.50	14.18	16.50	16.26	14.43	14.95	16.24	10.89	61.00	2.20
July	15.86	14.40	13.88	15.90	15.66	14.01	14.68	15.38	10.50	59.00	2.50
Aug.	15.63	14.09	13.94	15.25	15.56	14.20	14.50	15.44	10.85	56.70	2.50
Sept.	15.75	14.00	14.00	15.25	15.97	14.25	14.55	15.50	11.20	54.50	2.37
Oct.	15.67	13.97	13.83	15.25	15.94	14.25	14.73	15.50	11.48	50.28	2.10
Nov.	15.23	13.28	13.57	15.13	15.61	13.96	14.35	15.43	10.80	50.00	1.88
Dec.	14.95	12.83	13.38	14.75	14.98	13.32	13.76	14.83	10.50	47.00	1.77
Year	16.26	14.77	14.87	16.23	16.56	15.12	15.37	16.39	11.73	57.87	2.38
1914—											
Jan.	14.06	12.51	13.00	14.25	14.69	12.76	13.30	14.35	10.63	43.42	1.88
Feb.	14.13	13.21	13.21	14.00	14.88	13.02	13.56	14.46	10.52	38.33	1.90
Mar.	14.20	13.05	13.25	14.10	15.00	13.38	13.75	14.75	10.75	38.40	1.92
April	14.00	13.00	13.25	14.25	15.00	13.75	14.21	14.75	10.52	38.00	1.90
May	14.00	13.00	13.17	14.10	14.91	13.57	14.25	14.68	10.50	38.00	1.83

*Contract price, f.o.b. Baltimore; †Prompt, f.o.b. Connellsville ovens.

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sponsible for the slight decline which has since occurred in pig iron, for the ore reduction may properly be regarded as having been discounted in the large decline which occurred in pig iron late last year. The total decline from October 1st to February 1st, as indicated by the above table, was $1.35, or a trifle more than an equivalent to the ore reduction. The market would have to fall 25 cents more to bring it to the level of February 1st.

Billets and Sheet Bars.

There was practically no market movement in billets or sheet bars in May. The finishing mills had lighter operations than expected, and their contracts fully supplied their requirements. Most contracts expire June 30th, and considerable contracting is to be expected in June, though with consumers operating at rather a light rate, and considerable tonnage carried over July 1st, the buying may not be as heavy as usual.

Without any transactions marking clearly the decline, it has become evident that billets can be bought at $19.50, sheet bars at $20.50 and rods at $25.50, at maker's mill, Pittsburgh or Youngstown, involving a decline of 50 cents since the beginning of May and making the openly quoted market on billets and sheet bars slightly lower than that of last December. The market is therefore lower than at any time since February, 1912.

Finished Steel.

At the beginning of May the leading mills were making somewhat of a stand for 1.15c for bars, plates and shapes. This attitude has been abandoned, plates being sold freely at 1.10c and bars and shapes at 1.12½c. Only the smallest orders go at 1.15c.

Tubular goods have been held quite firmly, as to the standard lines, since the reductions of April 20th on standard steel pipe and May 1st on boiler tubes and oil country goods. Specialties, however, are being deeply cut.

Sheets have sagged only a trifle in price, 1.85c for black and 2.75c for galvanized being the regular going prices. The small spread between black and galvanized is noteworthy. Until lately the lowest spread on record was $1.00 per 100 lbs. The de-

FINISHED STEEL PRICES.

(Averaged from daily quotations, f.o.b. Pittsburgh.)

	Shapes.	Plates.	Bars.	Pipe.	Wire.	Wire Nails.	Cut Nails.	Sheets Black.	Sheets Galv.	Tin plate.	Composite Finished steel.
1913—											
January	1.50	1.50	1.40	80	1.55	1.75	1.70	2.32	3.47	3.60	1.7737
February ..	1.45	1.45	1.40	80	1.55	1.75	1.70	2.35	3.50	3.60	1.7625
March	1.45	1.45	1.40	80	1.56	1.76	1.70	2.35	3.50	3.60	1.7646
April	1.45	1.45	1.40	79¾	1.60	1.80	1.70	2.35	3.45	3.60	1.7743
May	1.45	1.45	1.40	79½	1.60	1.80	1.70	2.35	3.40	3.60	1.7786
June	1.45	1.45	1.40	79	1.55	1.75	1.70	2.29	3.38	3.60	1.7719
July	1.45	1.45	1.40	79	1.50	1.70	1.70	2.25	3.31	3.60	1.7600
August	1.45	1.44	1.40	79¾	1.47	1.67	1.60	2.20	3.25	3.60	1.7400
September..	1.40	1.40	1.40	80	1.43	1.63	1.60	2.12	3.17	3.60	1.7093
October ...	1.39	1.36	1.39	80	1.40	1.60	1.60	2.04	3.08	3.50	1.6779
November	1.34	1.29	1.30	80	1.40	1.60	1.60	1.98	2.98	3.40	1.6203
December ..	1.24	1.21	1.22	80	1.35	1.55	1.60	1.90	2.90	3.40	1.5558
Year	1.42	1.41	1.38	79¾	1.50	1.70	1.66	2.21	3.28	3.56	1.7241
1914—											
January	1.20	1.20	1.20	80	1.33	1.53	1.60	1.86	2.86	3.40	1.5394
February ..	1.25	1.21	1.22	79¼	1.40	1.60	1.60	1.95	2.95	3.40	1.5794
March	1.21	1.18	1.20	79½	1.40	1.60	1.60	1.95	2.95	3.40	1.5638
April	1.18	1.15	1.15	79¾	1.40	1.60	1.60	1.90	2.89	3.39	1.5337
May	1.15	1.14	1.14	80	1.38	1.58	1.60	1.85	2.79	3.30	1.5078

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crease in the spread is a reflection of the low cost of spelter, and improvements in galvanizing practice.

An event of interest in the tin plate trade in May was the booking of three contracts with the several branches of the Standard Oil Company, covering 750,000 boxes of tin plate for second half delivery, to be used in the oil export trade. This business was taken by very close figuring on the part of the American Sheet & Tin Plate Company, against sharp competition by the Welsh mills. For the first quarter of this year the American company held two of the three contracts, while for the second quarter it held all three, and it now maintains its position for the second half. The considerable imports of tin plate in the first three months of this year are to be taken as made up chiefly of this business, which is not subject to the tariff. There have been it is believed, some imports on the Pacific coast, subject to the full tariff as reduced in October, but on the whole iron and steel imports have been very light under the new tariff.

U. S. STEEL CORPORATION'S OPERATIONS.

EARNINGS AND UNFILLED ORDERS.

Earnings by Quarters.

Net earnings by quarters since 1908:

Quarter.	1914.	1913.	1912.
1st	$17,994,381	$34,426,801	$17,826,973
2nd	.....	41,210,813	25,102,265
3rd	.....	38,450,400	30,063,512
4th	.....	23,036,349	35,185,557
Year	.....	137,133,363	108,178,307
	1911.	1910.	1909.
1st	$23,519,203	$37,616,876	$22,921,268
2nd	28,108,520	40,170,960	29,340,491
3rd	29,522,725	37,365,187	38,246,907
4th	23,155,018	25,901,730	40,982,746
Year	104,305,466	141,054,753	131,491,412

Unfilled Orders.

(At end of the Quarter):

	First.	Second.	Third	Fourth.
1903..	5,410,719	4,666,578	3,278,742	3,215,123
1904..	4,136,961	3,192,277	3,027,436	4,696,203
1905..	5,579,560	4,829,655	5,865,377	7,605,086
1906..	7,018,712	6,809,584	7,936,884	8,489,718
1907..	8,043,858	7,603,878	6,425,008	4,642,553
1908..	3,765,343	3,313,876	3,421,977	3,603,527
1909..	3,542,590	4,057,939	4,796,833	5,927,031
1910..	5,402,514	4,257,794	3,158,106	2,674,757
1911..	3,447,301	3,361,058	3,611,317	5,084,761
1912..	5,304,841	5,807,346	6,551,507	7,932,164
1913..	7,468,956	5,807,317	5,003,785	4,282,108
1914..	4,657,825	.....	.....	.....

BOOKINGS AND SHIPMENTS.

In this table, first two columns, percentages of bookings and shipments to total capacity, are our estimates, while last column is derived from official reports of "unfilled tonnage" while third percentage column is directly computed from this tonnage column.

1912—	Shipments. %	Bookings. %	Difference. %	Difference. Tons.
January	70	95	+25	+294,960
February ...	78	85	+ 7	+ 74,479
March	85	68	—17	—149,359
April	92	124	+32	+360,044
May	93	101	+ 8	+ 86,098
June	94	99	+ 5	+ 56,363
July	82	95	+13	+149,733
August	92	110	+18	+206,296
September ..	98	135	+37	+388,132
October	98	187	+89	+1,042,874
November ..	96	120	+24	+258,512
December ..	97	104	+ 7	+ 79,281
January 1913	98	89	— 9	—104,796
February ...	98	82	—16	—170,654
March	93	77	—16	—187,758
April	93	51	—42	—490,194
May	95	41	—54	—654,440
June	93	47	—46	—517,105
July	90	55	—35	—407,961
August	90	75	—15	—175,888
September ..	92	74	—18	—219,683
October ...	87	74	—40	—490,018
November ..	70	59	—11	—117,420
December ..	50	40	—10	—114,239
January 1914	55	83	+28	+331,572
February ...	67	105	+38	+412,764
March	72	40	—32	—372,615
April	67	35	—32	—376,757

PRICE CHANGES.

Price changes in merchant bars, structural shapes, plates, wire nails merchant pipe, sheets and tin plates are given below, with dates, from March, 1912. These are the commodities used in compiling our **composite finished steel**. In some cases the dates named are those upon which prominent producers announced price changes, but more frequently dates are merely those upon which our quotations were changed.

1912—			
April 10	Bars	1.10	to 1.15
" 10	Plates	1.15	to 1.20
" 10	Shapes	1.15	to 1.20
" 22	Sheets	1.85	to 1.90
" 24	Bars	1.15	to 1.20
" 24	Plates	1.20	to 1.25
" 24	Shapes	1.20	to 1.25
May 7	Tin plates	3.30	to 3.40
June 1	Pipe	81%	to 80%
" 26	Bars	1.20	to 1.25
" 26	Shapes	1.25	to 1.30
" 26	Plates	1.25	to 1.30
July 1	Sheets	1.90	to 1.95
" 9	Tin plates	3.40	to 3.50
" 22	Wire nails	1.60	to 1.65
" 24	Sheets	1.95	to 2.00
" 25	Pipe	80%	to 79%
Aug. 1	Bars	1.25	to 1.30
" 1	Plates	1.30	to 1.35
" 1	Shapes	1.30	to 1.35
" 13	Sheets	2.00	to 2.05
" 20	Plates	1.35	to 1.40
" 20	Shapes	1.35	to 1.40
" 26	Wire nails	1.65	to 1.70
Sept. 4	Tin plate	3.50	to 3.60
" 4	Sheets	2.05	to 2.10
" 10	Sheets	2.05	to 2.10
" 11	Sheets	2.10	to 2.15
" 26	Bars	1.30	to 1.35
Oct. 8	Plates	1.40	to 1.45
" 8	Shapes	1.40	to 1 50
" 9	Bars	1.35	to 1.40
" 10	Plates	1.45	to 1.50
" 10	Shapes	1.45	to 1.50
" 17	Sheets	2.15	to 2.25
Dec. 10	Wire nails	1.70	to 1.75
1913—			
Jan. 2	Pipe	79%	to 80%
" 14	Sheets	2.25	to 2.35
Feb. 1	Plates	1.50	to 1.45
" 1	Shapes	1.50	to 1.45
Mar. 24	Wire nails	1.75	to 1.80
April 14	Pipe	80%	to 79½%
May 27	Pipe	79½%	to 79%
June 2	Wire nails	1.80	to 1.75
" 11	Sheets	2.35	to 2.30
" 18	Sheets	2.30	to 2.25
July 1	Wire nails	1.75	to 1.70
Aug. 9	Pipe (⅜-3-in.)	79%	to 80%

1913—			
" 12	Wire nails	1.70	to 1.65
" 21	Sheets	2.25	to 2.15
" 27	Plates	1.45	to 140
Sept. 1	Shapes	1.45	to 1.40
" 22	Sheets	2.15	to 2.05
Oct. 2	Tin plates	3.60	to 3.50
" 3	Wire nails	1.65	to 1.60
" 16	Plates	1.40	to 1.35
" 21	Plates	1.35	to 1.30
" 23	Shapes	1.40	to 1.35
" 24	Sheets	2.05	to 2.00
" 27	Pipe	2½%	extra discount
" 28	Bars	1.40	to 1.35
Nov. 3	Tin plate	3.50	to 3.40
" 7	Bars	1.35	to 1.30
" 17	Sheets	2.00	to 1.95
" 25	Bars	1.30	to 1.25
" 25	Plates	1.30	to 1.25
" 25	Shapes	1.35	to 1.30
" 28	Wire nails	1.60	to 1.55
Dec. 2	Sheets	1.95	to 1.90
" 3	Shapes	1.30	to 1.25
" 4	Plates	1.25	to 1.20
" 11	Bars	1.25	to 1.20
" 22	Shapes	1.25	to 1.20
" 31	Sheets	1.90	to 1.80
1914—			
Jan. 6	Wire nails	1.55	to 1.50
" 7	Sheets	1.80	to 1.85
" 13	Wire nails	1.50	to 1.55
" 23	Sheets	1.85	to 1.90
" 30	Sheets	1.90	to 1.95
Feb. 2	Pipe	80%	to 79½%
" 2	Wire nails	1.55	to 1.60
" 4	Shapes	1.20	to 1.25
Mar. 9	Shapes	1.25	to 1.20
" 20	Plates	1.20	to 1.15
April 1	Bars	1.20	to 1.15
" 8	Sheets	1.95	to 1.90
" 17	Shapes	1.20	to 1.15
" 20	Pipe	79½%	to 80%
" 27	Sheets	1.90	to 1.85
" 29	Tin plates	3.40	to 3.30
May 19	Bars	1.15	to 1.12½
" 22	Wire nails	1.60	to 1.55
" 26	Shapes	1.15	to 1.12½
" 29	Plates	1.12½	to 1.10
" 29	Wire nails	1.55	to 1.50

COMPOSITE STEEL.

Computation for June 1, 1914:

Pounds.	Group.	Price.	Extension.
2¼	Bars.	1.12½	2.8125
1½	Plates	1.10	1.650
1½	Shapes	1.12½	1.6875
1¼	Pipe (3¼-3)	1.95	2.925
1½	Wire nails	1.50	2.250
1	Sheets (28 bl.)	1.85	1.850
½	Tin plates	3.30	1.650
10 pounds			14.825

One pound 1.4825

(Averaged from daily quotations.)

	1910.	1911.	1912.	1913.	1914.
Jan...	1.8625	1.7415	1.5123	1.7737	1.5394
Feb..	1.8475	1.7520	1.4878	1.7625	1.5794
Mar..	1.8475	1.7590	1.4790	1.7646	1.5638
April.	1.8400	1.7600	1.5206	1.774?	1.5337
May..	1.8325	1.7510	1.5590	1.7786	1.5078
June .	1.7955	1.6817	1.5794	1.7719	.....
July..	1.7755	1.6701	1.6188	1.7600	.....
Aug..	1.7550	1.6394	1.6784	1.7400	.....
Sept.	1.7470	1.6090	1.7086	1.7093	.....
Oct...	1.7350	1.5461	1.7588	1.6779	.....
Nov..	1.7305	1.4930	1.7750	1.6203	.....
Dec..	1.7380	1.4812	1.7789	1.5558	.....
Year.	1.7922	1.6570	1.6214	1.7241	.....

SCRAP IRON & STEEL PRICES.

	Melting Steel. Phila.	Bundled Sheet, Phila.	No. 1 R.R. Wrought, Phila.	No. 1 Cast, Phila.	No. 1 Steel, Phila.	Heavy Melt'g. Ch'go.
1912—						
Sep.	14.10	12.25	14.50	13.40	15.25	12.50
Oct.	15.75	12.95	15.80	14.05	15.75	14.00
Nov.	15.35	13.12	16.00	15.00	15.30	13.80
Dec.	15.10	13.15	15.75	15.10	14.75	13.40
Year	13.76	11.92	14.16	13.28	13.82	12.30
1913—						
Jan.	15.00	13.10	15.35	14.65	14.50	12.75
Feb.	14.35	12.00	15.35	14.65	13.25	12.65
Mar.	14.35	11.60	15.35	14.60	13.60	12.50
Apr.	14.25	10.50	15.50	14.50	13.75	12.60
May	13.50	10.00	15.00	14.25	12.25	11.50
June	13.20	9.25	14.25	13.50	11.50	10.75
July	12.50	8.75	13.35	12.30	11.15	10.60
Aug.	12.40	8.25	13.25	12.50	11.85	10.75
Sep.	12.60	8.00	13.00	12.50	12.25	10.60
Oct.	12.25	7.40	13.00	12.40	11.20	10.35
Nov.	11.40	6.75	11.85	12.00	10.30	10.25
Dec.	11.00	6.40	11.65	11.60	9.75	9.25
Year	13.07	9.33	13.91	13.29	12.12	11.21
1914—						
Jan.	11.25	7.00	12.20	12.00	10.50	9.25
Feb.	12.00	8.25	12.80	12.50	11.50	10.70
Mar.	12.25	9.00	12.85	12.40	11.50	10.50
Apr.	12.25	9.00	12.00	12.15	10.80	10.00
May	11.75	9.10	11.75	12.25	10.60	10.00

COMPOSITE PIG IRON.

Computation for June 1, 1914:

One ton Bessemer, valley	$14.00
Two tons basic, valley (13.00)	26.00
One ton No. 2 foundry, valley	13.00
One ton No. 2 foundry, Philadelphia	14.50
One ton No. 2X foundry, Buffalo ...	13.00
One ton No. 2 foundry, Cleveland ...	14.25
One ton No. 2 foundry, Chicago	14.75
Two tons No. 2 Southern foundry Cincinnati (13.75)	27.50
Total, ten tons	$136.75
One ton $13.675	

Averaged from daily quotations:

	1910.	1911.	1912.	1913.	1914.
Jan...	17.598	14.375	13.420	17.391	13.492
Feb..	17.215	14.340	13.427	17.140	13.721
Mar..	16.702	14.425	13.581	16.775	13.843
April	16.315	14.375	13.779	16.363	13.850
May .	15.750	14.242	13.917	15.682	13.808
June .	15.320	14.032	14.005	14.968	.....
July .	15.131	13.926	14.288	14.578	.....
Aug..	14.727	13.874	14.669	14.565	.....
Sep...	14.612	13.819	15.386	14.692	.....
Oct...	14.435	13.692	16.706	14.737	.....
Nov..	14.415	13.532	17.226	14.282	.....
Dec..	14.408	13.430	17.475	13.838	.....
Year.	15.552	14.005	14.823	15.418	.....

UNFINISHED STEEL AND IRON BARS.

(Averaged from daily quotations.)

	Billets, Pitts.	Sheet bars, Pitts.	Rods, Pitts.	— Iron bars, deliv.— Phila.	Pitts.	Ch'go.
1913—						
Jan.	28.40	29.40	30.00	1.68	1.65	1.60
Feb.	29.00	30.00	30.00	1.67	1.65	1.59
Mar.	29.00	30.00	30.00	1.65	1.65	1.58
Apr.	27.50	28.00	30.00	1.68	1.65	1.58
May	27.00	27.50	30.00	1.68	1.65	1.55
June	26.50	27.50	29.00	1.61	1.65	1.50
July	26.50	27.50	28.50	1.55	1.65	1.50
Aug.	25.75	26.50*	28.00	1.42	1.62	1.44
Sep.	24.00*	25.00*	27.37	1.33	1.59	1.37
Oct.	22.50	23.25	26.50	1.32	1.54	1.27
Nov.	20.50	21.50	26.00	1.30	1.45	1.15
Dec.	20.00	21.00	25.25	1.25	1.37	1.12
Year	25.55	26.43	28.39	1.51	1.59	1.45
1914—						
Jan.	20.00	20.25*	25.75	1.24	1.35	1.11
Feb.	21.00	22.00	26.00	1.28	1.35	1.14
Mar.	21.00	22.00	26.00	1.28	1.35	1.15
Apr.	20.75	21.75	25.50	1.23	1.31	1.14
May	20.00	21.00	26.00	1.23	1.29	1.10

* Premiums for Bessemer.

WESTERN IRON AND STEEL.

The month of May closes with signs of distinct improvement in the western market. There is more inquiry and a little more business in practically every line, from pig iron to finished products. Firmness in coke shows that the improvement reaches down into the invisible foundations of the market, and is not merely a ripple on the surface.

When we have good crops and good prices, the western business man forgets about politics. The wheat crop bids fair to break all records, and conditions are favorable for all other crops so far as the season has developed. There are no financial clouds visible in the West. The new reserve banks are being organized without any disturbance to money conditions. The bond business has been good for the past six months, and money is easily obtained for any legitimate purpose.

We have had a serious local trouble which seems on the point of clearing up. The brick makers have been on a strike for several months and practically all building operations have been tied up. Something like 100,000 men have been kept out of employment, and even the local market for bars has been affected to an extent noticed by the mills. The union has been contending foolishly for an agreement that the employer shall not discharge any member without the consent of the union. It is not expected that the deadlock will last much longer.

Railroad Buying Limited.

Car orders make a fair showing and supply the mills with a considerable tonnage of plates and shapes, but rail orders are for small lots and are not always reported. Purchases of track supplies have been curtailed to a surprising degree. There is no denying that the railroads have had a bad winter in their showings of net earnings, and the advance in rates for which they have been waiting will not solve the problem. Traffic and gross earnings only grow when the country is prosperous, but expenses seem to grow in poor years as well as profitable ones, and the only place the roads can economize is in purchase of new material.

It is expected that railroad buying during the last half of the year will be on a liberal scale, to make up for the enforced policy of the first half, and a little improvement is noted already.

Plates and Shapes.

There is a little improvement in the demand for structural material. There are more scattering inquiries, and they materialize into orders now at a better rate than a few weeks back. Outside of Chicago steel construction and building operations seem to be making fair progress, and a pronounced movement in the market would create confidence and put life into thousands of projects that are now held in abeyance.

Steel Bar Business Better.

May closes with considerable improvement in the way of specifications and new orders for soft steel bars. The market for concrete bars is growing steadily, and the soft steel mills are getting a better share of it at the present level of prices. The hard steel bar mills note a little improvement outside of Chicago, but the general suspension of building activity in the city has cut off the local demand. The agricultural implement people are clearing up the stocks they carried over last winter, and are getting in better shap for fall.

Pig Iron Inquiries.

Large buyers have been feeling the market the past week or two, apparently in the expectation that the rate decision of the Interstate Commerce Commission will awaken the trade. There has been a little scattered business done, but details are not available regarding any large tonnages, although another week may bring important developments along this line.

Buyers are up to the first of June without having covered their requirements to any extent for the third quarter or the last half. In fact, there has been very little sold for third quarter and almost none for the last half. While the foundries have been running light and may have stocks on hand or due them on contracts which will carry them well into the third quarter, a little improvement in general business conditions will bring them in and make an active market. The past three months have been extremely light in the way of sales, and prices are below the cost of production for all but the most favorably located furnaces, both north and south.

IRON AND STEEL IMPORTS AND EXPORTS.

VALUE OF TONNAGE AND NON-TONNAGE.

	1909.	1910.	1911.	1912.	1913.	1914.
January	$10,329,388	$14,513,394	$18,738,391	$18,451,914	$25,141,409	$16,706,836
February	10,947,159	13,949,082	18,690,792	21,801,570	24,089,871	16,520,260
March	13,873,746	17,253,503	22,591,991	24,474,799	27,221,210	20,551,137
April	13,058,297	16,529,260	24,916,912	26,789,853	27,123,044	.....
May	12,964,367	17,658,042	20,616,795	28,050,247	26,718,970	.....
June	13,779,736	16,503,204	20,310,053	24,795,802	25,228,346	.....
July	11,866,772	16,108,102	17,454,772	24,917,952	24,170,604	.....
August	14,134,487	17,628,537	20,013,557	25,450,107	23,947,440	.....
September ...	12,966,908	16,776,178	19,875,308	23,286,040	22,831,082	.....
October	14,249,598	17,452,085	20,220,833	25,271,559	25,189,745	.....
November ...	14,434,690	18,594,806	20,823,061	26,406,425	20,142,141	.....
December	15,069,246	18,300,710	22,186,996	23,750,864	22,616,701	.....
Totals	$157,674,394	$201,271,903	$249,656,411	$289,128,420	$294,435,060	$53,778,233

EXPORTS OF TONNAGE LINES— Gross Tons.

	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January	102,630	74,353	70,109	118,681	152,362	151,575	249,493	118,770
February	87,912	81,773	84,837	110,224	150,919	204,969	241,888	121,206
March	112,787	96,681	94,519	124,980	216,360	218,219	257,519	159,998
April	132,790	93,285	100,911	117,921	228,149	267,313	260,440	.....
May	91,543	64,041	109,808	135,306	178,589	307,656	242,188	.....
June	92,996	69,770	114,724	120,601	174,247	273,188	243,189	.....
July	122,240	86,796	100,850	127,578	162,855	272,778	237,159	.....
August	118,792	86,244	105,690	131,391	177,902	282,645	209,856	.....
September	114,819	76,732	97,641	119,155	181,150	248,613	213,058	.....
October	123,170	85,766	110,821	129,828	186,457	251,411	220,495	.....
November	116,309	71,130	116,105	155,138	187,554	233,342	175,961	.....
December	86,019	77,659	137,806	150,102	190,854	235,959	195,719	.....
Totals	1,301,979	961,242	1,243,567	1,540,895	2,187,724	2,948,466	2,759,232	399,974

IRON ORE IMPORTS.

	1911.	1912.	1913.	1914.
Jan. ..	102,600	154,118	175 463	101,804
Feb. ..	94,820	129,693	188,734	112,574
Mar. ..	134,785	157,469	164,865	68,549
April .	133,900	178,502	174,162	.....
May ..	217,467	194,482	191,860	.....
June ..	118,296	180,122	241,069	.....
July ..	200,845	185,677	272,017	.....
Aug. ..	175,183	178,828	213,139	.....
Sept. ..	184,456	180,571	295,424	.....
Oct. ..	172,459	202,125	274,433	.....
Nov. ..	128,019	163,017	179,727	.....
Dec. ..	148,902	199,982	223,933	.....
Totals	1,811,732	2,104,576	2,594,826	282,927

IRON AND STEEL IMPORTS.

	1910.	1911.	1912.	1913.	1914.
Jan..	56,207	33,071	20,008	21,740	17,835
Feb..	43,613	20,812	11,622	25,505	14,309
Mar..	54,176	23,533	15,466	27,467	27,829
April	47,698	22,392	12,481	25,743	.....
May.	42,569	23,347	15,949	28,572	.....
June	30,322	29,399	21,407	36,597	.....
July	41,933	15,782	17,882	39,694	.....
Aug..	36,879	10,944	20,571	18,740	.....
Sep..	30,961	14,039	18,740	19,941	.....
Oct..	31,455	21,035	25,559	20,825	.....
Nov..	40,585	13,880	24,154	25,809	.....
Dec..	31,575	19,665	21,231	26,453	.....
Total	487,973	256,903	225,072	317,244	59,973

IRON AND STEEL.

AMERICAN IRON AND STEEL INSTITUTE.

The Spring meeting of the American Iron and Steel Institute was held at the Waldorf-Astoria, New York City, Friday, May 22nd, with nearly 500 men, about 40 per cent of the total membership, in attendance. The papers were of unusual value, some of them being classics. At the banquet in the evening the speeches were largely informal. The opinions expressed as to the near future of the trade were quite mixed.

At the noon recess the annual meeting of the board of directors was held, and the officers were re-elected, as follows:

President, Elbert H. Gary.
First vice-president, Powell Stackhouse.
Second vice-president, Willis L. King.
Third vice-president, Charles M. Schwab.
Treasurer, Edward Bailey.
Secretary, James T. McCleary.

A list of the papers follows:

Modern American Blast Furnace Practice, by Herman A. Brassert, superintendent blast furnaces, Illinois Steel Company, South Chicago, Ill.

Discussion by John N. Reese, general superintendent northern furnaces, Republic Iron & Steel Company, Youngstown, O.

Discussion by Arthur J. Boyton, superintendent blast furnaces, National Tube Company, Lorain, O.

Discussion by Richard V. McKay, superintendent blast furnaces, Pennsylvania Steel Company, Steelton, Pa.

Discussion by Edgar S. Cook, president Warwick Iron Company, Pottstown, Pa.

The importance of the Investment Factor in Sales Policy, by Thomas J. Bray, president Republic Iron & Steel Company, Youngstown, O.

Discussion by C. Snelling Robinson, second vice-president Youngstown Sheet & Tube Company, Youngstown, O.

Discussion by Harry D. Westfall, vice-president LaBelle Iron Works, Steubenville, O.

The Practical Importance of Heat Treatments in the Steel Wire Industry, by John F. Tinsley, superintendent South Works, American Steel & Wire Company, Worcester, Mass.

Discussion by James W. Smith, factory manager Wyman & Gordon Company, Worcester, Mass.

Transportation, by J. Fred Townsend, traffic manager National Tube Company, Pittsburgh.

Discussion by Delos W. Cooke, vice-president and general traffic manager Erie Railroad Company, New York.

Discussion by Thomas O. Cole, traffic manager Bethlehem Steel Company, South Bethlehem, Pa.

Recent Progress in the Building of Large Steam Turbines, by Francis Hodgkinson, engineer Westinghouse Machine Company, East Pittsburgh, Pa.

Discussion by Henry G. Scott, superintendent motor power Interborough Rapid Transit Company, New York.

Some Recent Developments in By-Product Coke Ovens, by William H. Blauvelt, consulting engineer Semet-Solvay Company, Syracuse, N. Y.

Discussion by Carl A. Meissner, chairman Coke Committee United States Steel Corporation, New York.

The first iron ore shippers from the Menominee range this year were mines of Corrigan, McKinney & Company of Cleveland, the Armenia & Dunn at Crystal Falls and the Tully & Baker at Iron River.

The district meeting of the American Pig Iron Association will be held at Youngstown, O., the last week in June. The exact date has not been decided on.

CAR BUYING.

Freight cars ordered:		
First half 1912	85,000	
Second half 1912	150,000	
Year 1912		235,000
First half 1913	114,000	
Second half 1913	33,000	
Year 1913		147,000
January, 1914	10,000	
February	13,000	
March	7,000	
April	10,000	
May	8,700	
Five months, 1914		48,700
Equivalent rate per year		117,000

ROD AND NAIL STATISTICS.

The Bureau of Statistics of the American Iron and Steel Institute has compiled full statistics of 1913 production of iron and steel rods and wire and cut nails, the more important figures being given below.

Rods are usually spoken of as "wire rods" but inasmuch as the commodity frequently designated in the trade as "chain rods" is included statistically with wire rods the product is properly spoken of as "rods" for statistical purposes.

The following table shows production, imports, exports and apparent domestic consumption of rods, in gross tons.

	Production					Apparent
	Iron.	Steel.	Total.	Imports.	Exports.	consumption.
1900	1,929	844,362	846,291	21,092	10,652	856,731
1901	475	1,365,459	1,365,934	16,804	8,165	1,374,573
1902	206	1,574,087	1,574,293	21,382	24,613	1,571,062
1903	30	1,503,425	1,503,455	20,836	22,360	1,501,931
1904	1,166	1,697,862	1,699,028	15,313	20,073	1,694,268
1905	1,281	1,807,407	1,808,688	17,616	6,514	1,819,790
1906	1,201	1,870,413	1,871,614	17,799	5,895	1,883,518
1907	1,550	2,016,033	2,017,583	17,076	10,697	2,023,962
1908	509	1,816,440	1,816,949	11,209	7,412	1,820,746
1909	....	2,335,685	2,335,685	10,544	20,142	2,326,087
1910	627	2,241,203	2,241,830	20,374	22,869	2,239,335
1911	610	2,449,843	2,450,453	15,483	22,641	2,443,295
1912	1,289	2,652,264	2,653,553	15,069	64,978	2,603,644
1913	832	2,463,975	2,464,807	16,098	61,637	2,419,268

The following table gives the countries to which steel wire rods were exported in 1911, 1912, and 1913, and the pounds and values exported to each country.

Countries.	1911		1912		1913	
Calendar years.	Pounds.	Values.	Pounds.	Values.	Pounds.	Values.
Belgium	.....	.....	47,283	$1,075	.....	.....
England	117,280	$1,649	1,141,706	16,330	113,060	$1,475
Canada	50,585,647	657,188	143,276,757	1,863,469	137,308,225	1,800,877
Nicaragua	292	4	230	5	.....	.....
Mexico	.....	.....	45,660	1,014	15,362	488
Cuba	6,801	134	.....	.....	114,544	2,195
Venezuela	5,637	91	.....	.....	.....	.....
China	.....	.....	75,420	1,500	.....	.....
Australia and Tasmania	.....	.....	964,700	15,593	59,360	1,269
Other countries.	.....	.....	.....	.....	456,602	9,618
Total	50,715,657	$659,066	145,551,756	$1,898,986	138,067,153	$1,815,922

Wire nail production and exports are shown in the following table, in kegs of 100 pounds. Import statistics are not available, but the imports were inconsequential

Years, kegs.	Production.	Exports.	Consumption.
1901	9,803,822	420,506	9,383,316
1902	10,982,246	595,391	10,386,855
1903	9,631,661	704,546	8,927,115
1904	11,926,661	734,554	11,192,107
1905	10,854,892	799,734	10,055,158
1906	11,486,647	1,035,705	10,450,942
1907	11,731,044	945,035	10,786,009
1908	10,662,972	593,819	10,069,153
1909	13,916,053	686,687	13,229,366
1910	12,704,903	960,295	11,744,607
1911	13,437,778	1,200,957	12,236,821
1912	14,659,700	1,530,353	13,129,347
1913	13,559,727	977,477	12,582,250

ROD AND NAIL STATISTICS. (Continued.

Wire nail exports by destination are shown in the following table.

Countries—Kegs of 100 pounds.	1911.	1912.	1913.
England	73,871	166,484	99,683
Canada	10,158	44,533	34,632
Panama	9,757	25,480	16,822
Cuba	38,365	45,994	58,711
China	143,338	146,029	155,389
British India	58,353	118,723	79,858
Dutch East Indies	35,662	89,955	65,934
Japan	553,776	535,211	102,913
New Zealand	41,933	65,985	57,445
Philippine Islands	33,142	56,762	39,942
All other countries	202,602	235,217	266,148
Total	1,200,957	1,530,353	977,477

Cut nail production and exports are shown below. In 1913 the production of iron cut nails was 146,835 kegs and the production of steel cut nails 695,203 kegs.

Years. Kegs.	Production.	Exports.	Consumption.	Years. Kegs.	Production.	Exports.	Consumption.
1901	1,542,240	208,359	1,333,881	1908	956,182	157,319	798,863
1902	1,633,762	161,228	1,472,534	1909	1,207,597	222,565	985,032
1903	1,435,893	199,126	1,236,767	1910	1,005,233	182,087	823,146
1904	1,283,362	207,720	1,075,642	1911	967,636	255,854	711,782
1905	1,357,549	176,741	1,180,808	1912	978,415	208,568	769,847
1906	1,189,239	169,519	1,019,720	1913	842,038	84,885	757,153
1907	1,109,138	155,212	953,926				

STRUCTURAL SHAPE STATISTICS.

A comparison was recently published of structural shapes statistics in 1912 and 1913, according to returns just made by the Bureau of Statistics of the American Iron and Steel Institute. Of the total production of 3,004,889 gross tons in 1913, 451,083 tons was light shapes, while of the 1912 production of 2,846,487 tons the light shapes comprised 376,072 tons. Heavy shapes are shapes having one web or member 3 inches or over. Additional statistics are now given below.

Years. Gross tons.	Production of structural shapes. Iron.	Steel.	Total.	Add imports.	Deduct exports.	Approximate consumption.
1900	815,161		815,161	*	67,714	747,447
1901	1,013,150		1,013,150	*	54,005	959,145
1902	1,300,326		1,300,326	*	53,859	1,246,467
1903	1,095,813		1,095,813	8,865	30,641	1,074,037
1904	8,019	941,127	949,146	7,203	55,514	900,835
1905	11,630	1,648,889	1,660,519	16,147	84,234	1,592,432
1906	4,719	2,114,053	2,118,772	28,573	112,555	2,034,790
1907	3,973	1,936,379	1,940,352	2,294	138,442	1,804,204
1908	2,423	1,080,758	1,083,181	3,623	116,881	969,923
1909	44,814	2,230,748	2,275,562	6,146	90,830	2,190,878
1910	426	2,266,464	†2,266,890	14,897	146,721	2,135,066
1911	811	1,911,556	†1,912,367	5,343	223,493	1,694,217
1912	5,517	2,840,970	2,846,487	3,120	288,164	2,561,443
1913	3,841	3,001,048	3,004,889	11,659	416,264	2,600,284

* Imports of structural shapes were included with ingots, billets, etc., prior to 1902.

† Do not include some small forms of rolled iron and steel which were classified as structural shapes in 1909 and prior years.

COPPER.

COPPER IN MAY.

The market in copper during May was very dull and stagnant both here and abroad. During the entire month, producers kept their price unchanged at 14¼c delivered, cash in 30 days. The producers' statement on May 8th, showed the production to be the highest on record, exceeding the March production by 6,000,000 lbs.; that the American deliveries were 63,427,633 pounds, or as large as the average of 1912 and 1913, which was evidently in excess of the known consumption in America, but that in spite of this the producers' stocks had increased nearly 6,000,000 lbs. The effect of the statement was to unsettle the market and second hands offered to sell electrolytic at 14c. The producers however, held their prices unchanged. About the middle of the month some buying took place, for June and July deliveries for account of foreign and home consumers, and the outside price was again established at 14.15c, which was held until the close of the month. The publication of the foreign statistics on June 1st showing a net increase in European stocks for the fortnight of 1080 tons caused the London Standard market to decline 13s 9d, and second hands again became sellers at 14c, and at time of writing (June 8th) on the eve of the producers' statement they are sellers at 13⅞c and buyers very shy.

The May statistics issued today show that the production was 9,192,244 lbs. smaller than in April, although there was one day more than in the previous month, but there was an even greater falling off in the deliveries and producers' stocks increased 14,005,640 lbs.

Probably the most conspicuous feature of the statement was the falling off in the domestic deliveries from 63,427,633 lbs. in April to 55,592,170 lbs. in May which confirms our previously expressed contention that the April deliveries were in excess of the actual consumption. This is the most logical explanation for the shrinkage for the consumption itself did not decline 15% during the past month. The export deliveries were 13,184,250 lbs. less than in April, but as they were still some 4,000,000 lbs. larger than in May a year ago and as the exports from January to May, 1914 were 52,040,164 lbs. greater than in the corresponding five months in 1913, there is not much cause for complaint on that score.

The domestic deliveries on the other hand show a falling off in the same five months of 76,323,387 lbs. Altogether the statistics do not promise to do anything to help the market.

The demand for manufactured copper has been very unsatisfactory during the month, two reductions of ¼c per lb. each in sheet copper having failed to increase buying, which is quite natural, as the gen-

COPPER PRICES IN MAY.

	NEW YORK			LONDON	
Day.	Lake.	Electrolytic.	Casting.	Standard (Prompt)	Best Selected.
	Cts.	Cts.	Cts.	£ s d	£ s d
1.	14.50	14.15	14.10	63 15 0	68 0 0
2.	.....	.....	.....	.....	.....
3.	.....	.....	.....	.....	.....
4.	14.50	14.15	14.10	63 8 9	67 15 0
5.	14.50	14.15	14.10	63 7 6	67 15 0
6.	14.50	14.15	14.10	63 5 0	67 15 0
7.	14.50	14.12½	14.06¼	63 3 9	67 15 0
8.	14.43¾	14.05	13.95	62 16 3	67 10 0
9.	.....	.....	.....	.....	.....
10.	.....	.....	.....	.....	.....
11.	14.43¾	14.05	13.95	62 16 3	67 10 0
12.	14.43¾	14.05	13.95	63 3 9	67 15 0
13.	14.43¾	14.10	13.95	63 2 6	67 15 0
14.	14.43¾	14.10	13.95	63 0 0	67 15 0
15.	14.43¾	14.15	14.00	63 3 9	68 0 0
16.	.....	.....	.....	.....	.....
17.	.....	.....	.....	.....	.....
18.	14.43¾	14.15	14.00	63 3 9	67 15 0
19.	14.43¾	14.15	14.00	63 6 3	68 0 0
20.	14.43¾	14.15	14.00	63 7 6	68 0 0
21.	14.43¾	14.15	14.00	63 3 9	68 0 0
22.	14.43¾	14.15	14.00	62 18 9	67 15 0
23.	.....	.....	.....	.....	.....
24.	.....	.....	.....	.....	.....
25.	14.43¾	14.15	14.00	63 2 6	67 15 0
26.	14.37½	14.15	13.95	63 3 9	67 15 0
27.	14.37½	14.15	13.95	63 5 0	67 15 0
28.	14.37½	14.15	13.95	63 2 6	67 15 0
29.	14.37½	14.15	13.95	63 0 0	67 15 0
30.	.....	.....	.....	.....	.....
31.	.....	.....	.....	.....	.....
High	14.62½	14.20	14 15	64 0 0	68 0 0
Low	14.25	14.00	13.90	62 15 0	67 10 0
Av..	14.44	14.129	14.00	63 3 7	67 15 8

COPPER.

LAKE COPPER PRICES.

Average monthly prices of Lake Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.93	12.75	14.37½	16.89	14.76½
Feb.	13.76½	12.73	14.38½	15.37½	14.98
Mar.	13.71½	12.56	14.87	14.96	14.72
April	13.31	12.41	15.98	15.55	14.68
May	12.98	12.32	16.27	15.73	.....
June	12.83½	12.63	17.43	15.08	.....
July	12.62½	12.72	17.37	14.77	.....
Aug.	12.78½	12.70	17.61	15.79	.....
Sept.	12.72	12.57	17.69	16.72	.....
Oct.	12.90	12.47½	17.69	16.81	.....
Nov.	13.00½	12.84	17.66	15.90	.....
Dec.	12.92	13.79	17.62½	14.82	.....
Av..	13.12	12.71	16.58	15.70	.....

ELECTROLYTIC COPPER PRICES.

Average monthly prices of Electrolytic Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.68	12.53	14.27	16.75½	14.45
Feb.	13.51	12.48	14.26	15.27	14.67
Mar.	13.42½	12.31	14.78	14.92½	14.33½
April	12.93	12.15½	15.85	15.48	14.34
May	12.67	12.13	16.16	15.63	.....
June	12.59	12.55	17.29	14.85	.....
July	12.36½	12.62½	17.35	14.57	.....
Aug.	12.56	12.57½	17.60	15.68	.....
Sept.	12.49	12.39	17.67	16.55	.....
Oct.	12.77½	12.36	17.60	16.54	.....
Nov.	12.87½	12.77	17.49	15.47	.....
Dec.	12.72½	13.71	17.50½	14.47	.....
Av. .	12.88	12.55	16.48	15.52	.....

CASTING COPPER PRICES.

Average monthly price of Casting Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.60	12.39	14.02	16.57	14.27½
Feb.	13.41	12.33	14.02	15.14	14.48
Mar.	13.31	12.20	14.53	14.76	14.18
April	12.87	12.07	15.72½	15.33	14.18
May	12.62	12.08	16.01	15.45½	.....
June	12.52	12.40	17.08	14.72	.....
July	12.30	12.49½	17.09	14.40½	.....
Aug.	12.48	12.42	17.35	15.50	.....
Sept.	12.46	12.23	17.51	16.37½	.....
Oct.	12.70	12.21	17.44	16.33	.....
Nov.	12.82	12.61	17.34	15.19	.....
Dec.	12.64	13.56½	17.34	14.22	.....
Av. .	12.81	12.42	16.29	15.33	.....

VISIBLE SUPPLY OF COPPER.

Visible supply of copper at the end of each month based on the returns of the Copper Producers' Association and H. R. Merton & Company.

1910—	Stocks in American Producers' hands.	European Visible Supply.	Combined Visible Supply.
Mar. ..	123,824,874	249,607,680	373,432,554
April ..	141,984,159	246,863,680	388,847,839
May ..	160,425,973	239,265,600	399,691,573
June ..	168,386,017	232,863,680	401,249,697
July ..	170,640,678	222,295,360	392,936,038
Aug. ..	168,881,245	218,413,440	387,294,685
Sept. ..	148,793,714	210,472,640	359,266,354
Oct. ..	139,261,914	198,065,280	337,327,194
Nov. ..	130,389,069	193,200,000	323,589,069
Dec. ..	122,030,195	187,705,280	309,735,475
1911—			
Jan. ..	142,439,490	*236,976,320	379,415,810
Feb. ..	156,637,770	226,210,880	382,848,650
Mar. ..	162,007,934	223,030,080	385,038,014
April ..	165,555,908	212,280,320	377,836,228
May ..	165,995,932	202,413,120	368,409,052
June ..	157,434,164	195,937,280	353,371,444
July ..	137,738,858	192,584,000	330,322,858
Aug. ..	133,441,501	191,215,360	324,656,861
Sept. ..	140,894,856	191,945,600	332,840,456
Oct. ..	134,997,642	176,816,640	311,814,282
Nov. ..	111,785,188	164,151,680	275,936,868
Dec. ..	89,454,695	158,329,920	247,784,615
1912—			
Jan. ..	66,280,643	153,820,800	220,101,443
Feb. ..	62,939,988	141,135,680	204,075,668
Mar. ..	62,367,557	136,808,000	199,175,557
April ..	65,066,029	134,155,840	199,221,869
May ..	49,615,643	117,797,120	167,412,763
June ..	44,335,004	107,817,920	152,152,924
July ..	50,280,421	113,290,240	163,570,661
Aug. ..	46,701,374	113,783,040	160,484,414
Sept. ..	63,065,587	107,403,520	170,469,107
Oct. ..	76,744,964	103,801,600	180,546,564
Nov. ..	86,164,059	96,938,240	183,102,299
Dec. ..	105,312,582	96,857,600	202,170,182
1913—			
Jan. ..	123,198,332	96,546,240	219,744,572
Feb. ..	122,302,198	100,067,520	222,369,718
Mar. ..	104,269,270	†100,965,760	205,235,030
April ..	75,549,108	98,374,720	173,923,828
May ..	67,474,225	90,018,880	157,493,105
June ..	52,904,606	85,559,040	138,463,646
July ..	53,594,945	79,804,480	133,399,425
Aug. ..	38,314,037	76,260,800	114,574,837
Sept. ..	29,793,094	62,314,560	92,107,654
Oct. ..	32,566,382	57,854,480	90,420,862
Nov. ..	47,929,429	59,935,680	107,865,109
Dec. ..	91,438,867	66,124,800	157,563,667
1914—			
Jan. ..	87,296,685	58,114,560	145,411,245
Feb. ..	78,371,852	60,374,720	138,746,572
Mar. ..	64,609,319	58,528,960	123,138,279
April ..	70,337,001	65,582,720	135,919,721
May ..	84,342,641	72,486,400	156,829,041

* Hamburg and Rotterdam stocks included.
† Bremen stocks included.

TIN.

MONTHLY TIN STATISTICS.

Compiled by New York Metal Exchange.

	May 1914.	April 1914.	May 1913.
Straits shipments			
To Gt. Britain..	4,773	3,175	4,560
" Continent ...	1,157	818	430
" U. S.	933	975	1,085
Total from Straits	6,863	4,968	6,075
Australian shipments:			
To Gt. Britain..	145	230	225
" U. S.	nil	nil	nil
Total Australian.	145	230	225
Consumption:			
London deliveries	1,887	1,286	1,371
Holland deliveries	1,040	1,399	968
United States*...	3,800	4,300	3,350
Total	6,727	6,985	5,689
Stocks at close of month:			
In London	2,777	3,622	1,774
" " (Stand)	3,022	2,920	†
" Holland	2,355	976	2,094
" United States*	1,773	2,538	2,094
Total	9,927	10,056	5,962
Afloat at close of month:			
To London	5,359	3,554	5,055
" Holland	183	183	183
" United States*	2,393	1,654	2,510
Total	7,935	5,391	7,748
	1914.	1914.	1913.
Total visible supply	May 30, 17,862	Apr. 30, 15,447	May 31, 13,710

* Exclusive of Pacific ports.
† Not reported.

TIN AND SILVER. (Monthly Averages.)

	New York — Tin			New York — Silver		
	1912.	1913.	1914.	1912.	1913.	1914.
Jan.	43.24	50.45	37.74	56.22	62.93	57.56
Feb.	43.46	48.73	39.93	59.04	61 64	57.50½
Mar.	42.86	46.88	38.08	58.37	57.87	58.07
Apr.	44.02	49.12	36.10	59.23	59.49	58.52
May	46.12	49.14	33.30	60.88	60.36	58.18
June	47.77	44.93	.....	61.29	58.90	.....
July	44.75	40.39	.....	60.66	58.72	.....
Aug.	45.87	41.72	.....	61.61	59.29	.....
Sep.	49.18	42.47	.....	63 08	60.64	.....
Oct.	50.11	40.50	.....	63.47	60.79	.....
Nov.	49.90	39.81	....	62.79	58.99	.....
Dec.	49.90	37.64	.....	63.37	57.76	.....
Year	46.43	44.32	.....	60.83	59.73½	.....

VISIBLE SUPPLIES.

Total visible supply of tin at the end of each month.

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	21,895	23,024	18,616	16,707	13,971	16,244
Feb.	20,746	21,288	17,260	14,996	12,304	17,308
Mar.	19,208	20,203	16,682	15,694	11,132	16,989
Apr.	18,825	17,932	14,441	11,893	9,822	15,447
May	19,208	18,998	15,938	14,345	13,710	17,862
Jun.	18,208	15,700	16,605	12,920	11,101	.....
July	20,244	17,433	16,707	13,346	12,063	.....
Aug.	19,182	17,943	16,619	11,285	11,261	.....
Sep.	21,419	18,999	16,672	13,245	12,943	.....
Oct.	18,724	18,183	14,161	10,735	11,857	.....
Nov.	20,025	18,875	16,630	12,348	14,470	.....
Dec.	20,918	17,194	16,514	10,977	13,893	.....
Av.	19,883	18,815	16,404	13,207	12,377	.....

SHIPMENTS FROM THE STRAITS.

Monthly shipments of tin from the Straits Settlements to Europe and the United States, as per Powell's returns:

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	5,733	5,895	4,290	4,018	6,050	5,290
Feb.	4,033	4,147	4,290	5,260	4,660	6,520
Mar.	3,380	2,877	4,510	5,150	4,810	4,120
Apr.	4,904	4,025	3,140	4,290	4,400	4,930
May	5,184	4,965	4,310	5,760	6,160	6,900
June	4,618	4,120	5,050	4,290	4,820	.....
July	5,644	5,040	4,660	4,580	4,770	.....
Aug.	4,702	5,700	4,680	5,210	6,030	.....
Sep.	5,081	4,220	5,150	5,430	5,160	.....
Oct.	3,801	4,480	4,350	4,450	5,020	.....
Nov.	5,510	4,840	5,070	5,600	5,560	.....
Dec.	5,835	4,270	5,970	4,980	5,110	.....
	58,425	54,579	55,470	59,018	62,550	
Av..	4,869	4,548	4,622	4,918	5,213	

CONSUMPTION IN THE UNITED STATES.

Monthly deliveries of tin in the United States exclusive of Pacific Coast.

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	3,200	3,500	3,200	3,700	3,700	3,600
Feb.	2,700	3,600	3,800	4,050	3,500	3,300
Mar.	3,900	4,000	5,100	4,000	5,900	4,450
Apr.	3,200	4,100	3,300	5,400	3,450	4,300
May	3,900	3,600	3,400	4,250	3,350	3,800
June	3,200	5,000	2,900	2,850	3,800	.....
July	3,600	3,800	4,300	5,150	3,900	.....
Aug.	3,300	3,700	3,800	4,300	3,600	....
Sep.	3,200	3,300	4,200	3,600	3,100	....
Oct.	4,100	3,350	3,500	3,850	3,700	.....
Nov.	4,000	3,800	3,100	4,300	2,800	.....
Dec.	3,200	3,600	3,700	4,050	3,100	.....
	41,500	45,350	44,300	49,500	43,900	
Av..		3,458	3,779	3,692	4,125	3,658

COPPER—TIN

eral reluctance of buyers not only in copper but in all lines of merchandise is not caused by the prices being too high, but on account of lack of confidence in the general business situation.

The iron and steel business has continued to run on the basis of about 60 to 65% or normal, but in these commodities the production has been reduced to correspond with the consumption. The consumption of copper goes hand in hand to a great degree with the consumption of iron and steel, and if iron and steel has been only 65% of normal, it is difficult to believe that the copper consumption has been making a very much better record. In copper, however, the production has not been decreased, but the position has been disguised by the fairly good deliveries to American consumers, and the large exports which have kept down any very heavy increase in stocks. Foreign consumers are believed to be well stocked by the large shipments of the past five or six months, and the tendency of foreign stocks to increase will undoubtedly be continued. Until there is a change in the iron and steel trade and the business situation it is difficult to see how there can be any improvement in the price of copper.

WATERBURY AVERAGES.

The Waterbury averages for the month of May, 1914, were as follows:

Lake Ingot Copper	14.75
Electrolytic Ingot Copper	14.25
Brass Mill Spelter	5.38

	Copper — Lake		Copper — Electro	Spelter	
	1913.	1914.	1914.	1913.	1914.
Jan.	17.00	14.75	.....	7.56	5.54
Feb.	15.50	15.12½	.....	6.81	5.70
Mar.	15.12½	15.00	14.50	6.56	5.59
Apr.	15.75	14.87½	14.37½	6.08	5.50
May.	15.87½	14.75	14.25	5.77	5.38
June	15.37½	.....	.....	5.50	.....
July	14.75	.....	.....	5.61	.....
Aug.	15.62½	.....	.....	5.99	.....
Sep.	16.87½	.....	.....	6.13	.....
Oct.	16.87½	.....	.....	5.74	.....
Nov.	16.25	.....	.....	5.60	.....
Dec.	15.00	.....	.....	5.44	.....
Year.	15.83	.....	.....	6.06½	.....

TIN IN MAY.

The tin market was in a very disturbed condition throughout the month of May, following the previous three months' steady decline, which had reduced the price from 41¼c per pound early in February, to 34c at the opening of May. The foreign market continued entirely void of any support, with constant bear pressure, the basis of which was the prediction that the production of the metal was increasing and that the price of tin would continue to decline. Although there was very good buying on the part of American consumers during the month, it was offset by the almost continuous liquidation abroad, and the month closes with the price at about 31½c—a decline of 2½c per pound.

The statistics showed large shipments from the East during May—6863 tons—but the visible supply did not show as large an increase as was generally expected on account of good consumption, and the visible increase was only some 2500 tons. Since June 1st there has been a further decline of about 1c per pound, and the predictions are that the shipments from the Straits during June will exceed 6,000 tons.

The visible supply on June 1st, was 17,862 tons, price 30.50c, as compared with:

May 1, 1914,	15,447 tons,	price 34.00c
June 1, 1913,	13,710 tons,	price 46.70c
June 1, 1912,	14,345 tons,	price 46.35c
June 1, 1911,	15,938 tons,	price 46.50c

The last time the visible was as large

EXPORTS OF COPPER.

The following table shows the exports of copper for the past four years, in tons:

	1914.	1913.	1912.	1911.
Jan.	36,018	25,026	31,229	29,357
Feb.	34,634	26,792	31,894	19,492
Mar.	46,504	42,428	27,074	23,600
April	35,079	33,274	22,591	27,466
May	31,948	38,601	32,984	27,670
June	.....	28,015	26,669	30,489
July	.....	29,596	26,761	36,659
Aug.	.....	35,072	29,526	29,018
Sept.	.....	34,356	25,572	26,170
Oct.	.....	29,239	25,020	22,555
Nov.	.....	29,758	19,171	26,600
Dec.	.....	30,653	29,474	37,725
Total	.....	382,810	327,965	336,801

TIN.

as at present was February 1, 1911, 18,616 tons, nearly 1,000 tons more than today, price 43¼c. Until last January the outside brands of tin were not figured in the statistics; if they had been the visible in previous years would have been larger, so it is evident it is not altogether the statistical position that is responsible for the recent decline.

American deliveries into consumption during May were good, amounting to 3,800 tons. The total for five months shows a decrease of 450 tons compared with the same time last year.

The combined deliveries of London and Holland for May were 588 tons larger than that month last year. For the five months the increase in deliveries amounts to 721 tons, compared with the same time last year.

Shipments from the Straits for May were 788 tons larger than for the same month of last year. For the five months of this year the increase in shipments amounts to 1,774 tons, compared with the same time last year.

Australia shipped in May 80 tons less compared with the same month of last year. For the five months of this year the shipments were 125 tons smaller compared with last year.

The continued rapid decline has demoralized the trade here and abroad, all support continues lacking, and bear pressure as great as at any time. A substantial open bear account abroad is now believed to exist.

An examination of the statistical position shows that there has been little, up to the present, to justify the severe decline, unless the prediction regarding the increase in production to come during the balance of the year, is confirmed. Compared with almost every other commodity, the consumption of pig tin has made a remarkable record both here and abroad, the explanation for which is that in times when people have to economize, the use of tinplates increases (this material taking the place of more expensive commodities) also an increased use of canned goods. The production of tinplates so far this year is at a new high record, but there has been a falling off in the engineering trade, for which the lack of railroad buying and general poor trade is responsible.

Traders in the metal have been in a demoralized condition, which is easily explained when attention is called to the fact that there has been a decline of £50 in the past four months and £92 decline in the past sixteen months.

Tin is a very speculative article and we have had experiences in the past when the price has been run up in excess of what the situation justified, but we believe that the decline that has taken place has a great deal more than discounted any further increase in the production, and that this will be demonstrated at the first signs of any returning confidence.

TIN PRICES IN MAY.

	New York.	London prompts.			C I. F.		
	Cts.	£	s	d	£	s	d
1	34.00	155	0	0	158	15	0
2	.....	.....			.....		
3	.....	.....			.....		
4	33.87½	153	10	0	157	5	0
5	33.15	150	10	0	155	10	0
6	33.12½	149	15	0	153	10	0
7	33.55	152	0	0	152	10	0
8	33.45	151	10	0	154	0	0
9	.....	.....			.....		
10	.....	.....			.....		
11	33.40	151	12	6	153	10	0
12	33.80	153	0	0	154	0	0
13	33.80	153	5	0	155	5	0
14	33.95	153	15	0	155	10	0
15	34.50	156	10	0	156	15	6
16	.....	.....			.....		
17	.....	.....			.....		
18	33.20	150	5	0	159	0	0
19	33.00	149	5	0	152	0	0
20	32.95	149	0	0	151	15	0
21	33.25	150	0	0	151	7	6
22	33.25	150	0	0	152	10	0
23	.....	.....			.....		
24	.....	.....			.....		
25	33.25	149	15	0	152	17	6
26	33.30	150	0	0	152	15	0
27	32.87½	148	10	0	153	0	0
28	32.05	144	12	6	150	10	0
29	31.55	143	0	0	147	0	0
30	.....	.....			.....		
31	.....	.....			.....		
High	34.50	156	15	0	159	0	0
Low	31.55	142	10	0	147	0	0
Average	33.298	150	8	4	153	15	0

ALUMINUM—ANTIMONY

ALUMINUM IN MAY.

The aluminum market has continued stagnant, consumption poor and prices nominally unchanged. As we said last month the American output is quite sufficient to take care of the requirements of the country and very little foreign metal has been sold. The foreign market is in a comparatively better condition than our own and the European producers have not been eager enough for American orders to name a price low enough to take the business. The European Syndicate which embraces all the large producers is in a large measure responsible for the price remaining so steady abroad and it may be a part of their policy to avoid a sharp competition with the American producer.

With business as it is at present there is nothing to cause prices to advance and with supplies plentiful the consumers will probably avoid entering into long time contracts

ANTIMONY IN MAY.

The antimony market has been extremely dull and stagnant throughout the entire month combined with a very unsatisfactory jobbing trade. Prices however are so low that they have held unchanged. The only business during the month has been the occasional sale of Chinese and Japanese antimony for shipment during the balance of the year at around ⅛c per pound below the spot price. The willingness of these Eastern producers to take future orders has not been a favorable feature, and has helped to make the low prices unproductive of buying interest, because although these producers are undoubtedly taking heavy losses at present prices, they have apparently not reached the point yet of curtailing production.

Nothing further has been said about the movement to form an antimony syndicate or comptoir and it is generally believed that the undertaking has been abandoned for the time being owing to the refusal of several important makers to take a hand in it.

ALUMINUM, ANTIMONY AND SILVER PRICES IN MAY.

		—— Antimony ——			—Silver—	
	Aluminum.	Cookesons.	Halletts.	Hungarian.	New York.	London.
Day.	Cts.	Cts.	Cts.	Cts.	Cts.	d.
1.	17.87½	7.20	6.85	5.80	59⅛	27⅜
2.	.....	....	....	...	59⅛	27⅜
3.	.....	....	....	....	....	....
4.	17.87½	7.20	6.85	5.80	59⅛	27⅜
5.	17.87½	7.30	6.90	5.80	59⅛	27⅜
6.	17.87½	7.30	6.90	5.80	59	27⅛
7.	17.87½	7.30	6.90	5.80	58¾	27
8.	17.87½	7.30	6.90	5.80	58⅞	27⅛
9.	.....	....	....	....	58⅞	27⅛
10.	.....	....	....	....	....	....
11.	18.00	7.30	6.90	5.80	58¾	27
12.	18.00	7.30	6.90	5.80	58½	26⅞
13.	18.00	7.30	6.90	5.80	58⅝	26½
14.	18.00	7.30	6.90	5.80	58⅝	26½
15.	18.00	7.30	6.90	5.80	58⅝	26½
16.	.....	....	....	....	58½	26⅞
17.	.....	....	....	....	....	....
18.	18.00	7.30	6.90	5.80	58½	26⅞
19.	18.00	7.30	6.90	5.80	58	26⅝
20.	18.00	7.30	6.90	5.75	57⅝	26½
21.	18.00	7.30	6.90	5.75	57⅝	26⅜
22.	17.87½	7.30	6.90	5.75	57½	26⅜
23.	.....	....	....	....	57¼	26⅜
24.	.....	....	....	....	....	....
25.	17.87½	7.30	6.90	5.75	56½	25⅞
26.	17.87½	7.30	6.90	5.75	56¾	26⅛
27.	17.87½	7.30	6.90	5.75	57⅛	26¼
28.	17.87½	7.30	6.90	5.75	57	26⅛
29.	17.87½	7.30	6.90	5.75	57	26⅛
30.	....	....	....	....	....	26
31.	.....	....	....	....	....	....
High	18.12½	7.35	6.95	5.85	59⅛	27⅛
Low	17.75	7.15	6.80	5.70	56½	25⅞
Av'ge	17.928	7.29	6.895	5.78	58.18	26.70

ANTIMONY PRICES IN NEW YORK.

Highest, lowest and average price of Cooksons antimony in New York.

1913—	Highest.	Lowest.	Average.
Year	9.87½	7.25	8.51½
1914—			
January	7.37½	7.25	7.31
February	7.25	7.20	7.24
March	7.25	7.20	7.23
April	7.25	7.15	7.22
May	7.35	7.15	7.29

SPELTER.

SPELTER IN MAY.

The spelter market has been very dull throughout the month. Opening at 4.90 f.o.b. East St. Louis, there was a slight improvement in the demand from the galvanized sheet manufacturers and the price improved to 5c a pound. During the latter half of the month the market was dull and dragging and 5c was being shaded on all orders. That the consumption has been poor is quite natural, as the iron and steel trade are the largest users of this metal and the iron and steel business is averaging not better than 60 to 65 per cent of normal. Some time back the sheet trade was making a good showing for itself but lately this branch of the steel industry has suffered in common with all other lines and the sheet production is about on a par with the general average.

Although there has been some curtailment in the production of spelter it is quite evident that there has been an increase in the surplus stocks but the easy money market has aided the carrying of these stocks. Producers, however, appreciate that only a limited amount of business is available and that a reduction in their price would not increase the demand so that they have nothing else to do but to wait for an improvement in the general trade to bring a better demand for their commodity. Also at present prices the output in most cases is showing the producers a loss.

In spite of the dulness the market has shown great resistance to going lower and in spite of the stocks being large, should there be any improvement in business, the financial strength of the producing interests could easily enable them to get sufficiently better prices to at least cover the cost of production. There has been at no time any desire to force sales or to discount a further decline. A feature of the market has been the total absence of operations on the part of outside dealers and speculators.

SPELTER (Monthly Averages.)

	— New York —			— St. Louis —		
	1912.	1913.	1914.	1912.	1913.	1914.
Jan.	6.55	7.23	5.33	6.39½	7.04	5.14
Feb.	6.70	6.49	5.46	6.53	6.25	5.27
Mar.	6.93	6.29	5.35	6.74	6.08	5.15
Apr.	6.87	5.79	5.22	6.66	5.59	5.03
May	6.89	5.51	5.16	6.71	5.31	4.96
June	7.05	5.23½	....	6.85½	5.05	....
July	7.23	5.41	....	7.04	5.23	....
Aug.	7.13	5.80	....	6.94	5.64	....
Sep.	7.55	5.83	....	7..7	5.65	....
Oct.	7.61	5.47	....	7.39	5.27	....
Nov.	7.50	5.34	...	7.32	5.15	....
Dec.	7.36	5.22	...	7.19	5.03	....
Year	7.11	5.80	....	6.93	5.61	....

SPELTER AND LEAD PRICES IN MAY.

	SPELTER			LEAD		
Day.	New York	St. Louis	London.	*New York.	St. Louis.	London
1.	5.10	4.90	21 10 0	3.92½	3.78¾	18 7 6
2.	....	....	.....	....	....	.....
3.	....	....	.....	....	....	.....
4.	5.10	4.90	21 7 6	3.92½	3.80	18 5 0
5.	5.10	4.90	21 7 6	3.92½	3.80	18 5 0
6.	5.12½	4.92½	21 7 6	3.92½	3.81¼	18 5 0
7.	5.12½	4.95	21 7 6	3.92½	3.81¼	18 5 0
8.	5.20	5.00	21 7 6	3.92½	3.82½	18 7 6
9.	....	....	.....	....	....	.....
10.	....	....	.....	....	....	.....
11.	5.20	5.00	21 7 6	3.92½	3.82½	18 5 0
12.	5.20	5.00	21 7 6	3.92½	3.82½	18 7 6
13.	5.20	5.00	21 7 6	3.92½	3.82½	18 7 6
14.	5.20	5.00	21 7 6	3.92½	3.82½	18 7 6
15.	5.20	5.00	21 7 6	3.92½	3.82½	18 10 0
16.	....	....	.....	....	....	.....
17.	....	....	.....	....	....	.....
18.	5.20	4.97½	21 7 6	3.92½	3.80	18 15 0
19.	5.20	4.97½	21 7 6	3.92½	3.80	18 17 6
20.	5.15	4.96¼	21 7 6	3.92½	3.80	19 0 0
21.	5.15	4.96¼	21 7 6	3.92½	3.80	18 15 0
22.	5.15	4.96¼	21 7 6	3.92½	3.80	18 12 6
23.	....	....	.....	....	....	.....
24.	....	....	.....	....	....	.....
25.	5.15	4.96¼	21 7 6	3.92½	3.80	18 10 0
26.	5.15	4.96¼	21 7 6	3.90	3.80	18 12 6
27.	5.15	4.96¼	21 7 6	3.90	3.80	18 17 6
28.	5.15	4.96¼	21 10 0	3.90	3.81¼	18 17 6
29.	5 15	4.97½	21 10 0	3.90	3.80	19 2 6
30.	...	....	.....	...	....	.....
31.	....	....	.....	....	....	.....
High	5.25	5.00	21 10 0	3.95	3.82½	19 2 6
Low.	5.05	4.90	21 7 6	3.90	3.77½	18 5 0
Av'ge	5.159	4.963	21 7 10	3.92	3.808	18 11 1

* New York lead price outside market.

LEAD

LEAD IN MAY.

The Trust price of lead remained unchanged throughout the month at 3.82½ f.o.b. St. Louis and 3.90 f.o.b. New York and second hands have shown no disposition to cut prices in spite of the extremely dull conditions and apparently unsatisfactory demand. It is also to be noticed that sellers have declined to sell at any time for deliveries beyond 30 days ahead. Stocks are believed to be large and consumption considerably below normal, but as we mentioned last month, with the exception of a few months following the panic of 1907, when the market dropped to 3½c only to advance within a year thereafter to 4.60, present prices are lower than any time since 1898, and with an improvement in general business this metal would certainly advance. On account of the Trust control and the absence of statistics it is quite impossible to say what the situation is from a statistical standpoint.

The market has indirectly benefitted by the strong situation in Europe and the continuance of high prices abroad should prevent any further decline here. The price in London on June 8th was £19 5s less 2½ per cent discount, equal to about 4.07½ per pound net or more than ⅛c higher than the price in New York on the same day. And yet it was a little over a year ago that lead mining interests were flocking to Washington to protest against lowering the 2⅛c per pound duty and it was stated at the time that a duty of 25 per cent ad valorem would fall considerably short of providing the necessary protection. No one could foresee at the time that under the lower duty there would not alone be no imports but that we would actually export domestic lead to Europe, but that is what has happened.

The following table shows the high, low and average prices in New York since 1903:

	High.	Low.	Average.
1903	4.65	4.10	4.26
1904	4.60	4.10	4.32
1905‡	5.60	4.45	4.70
1906*	6.00	5.35	5.66
1907*	6.00	3.50†	5.35
1908†	4.60	3.65	4.23
1909	4.70	4.00	4.30
1910	4.70	4.40	4.49
1911	4.50	4.25	4.40
1912	5.10	4.00	4.48
1913	4.75	4.00	4.40
1914‡	4.15	3.80	3.97

* Premiums paid in outside market.
† Open market; Trust price withdrawn.
‡ To May 30th.

LEAD (Monthly Averages.)

	—New York*—			—St. Louis—		
	1912.	1913.	1914.	1912	1913.	1914.
Jan.	4.44	4.35	4.11	4.34	4.20	3.99½
Feb.	4.04	4.35	4.06	3.99	4.20	3.95
Mar.	4.07	4.35	3.97	4.06	4.21	3.83
Apr.	4.20	4.40	3.82	4.14	4.25½	3.70
May	4.20	4.36	3.90	4.09	4.22	3.81
June	4.39½	4.35	....	4.31	4.21	....
July	4.73	4.37	....	4.60	4.25	....
Aug.	4.56½	4.63	....	4.46	4.56	....
Sep.	5.05	4.75	....	4.94	4.62	....
Oct.	5.10	4.45	....	4.91	4.31	....
Nov.	4.69	4.34	....	4.50	4.18	....
Dec.	4.36	4.06	....	4.19	3.94	....
Year	4.48½	4.40	....	4.38	4.26	....

* Trust price.

COMPOSITE METAL PRICES.

Computation for June 1, 1914:

Pounds.	Metal.	Price.	Extension.
2½	Spelter (St. Louis)	4.97½	12.437
4	Lead (St. Louis)	3.80	15.200
3	Copper (Electro)	14.15	42.450
½	Tiu (New York)	31.45	15.725
10	pounds		85.812
	One pound		**8.5812**

Monthly averages.

	1910.	1911.	1912.	1913.	1914.
Jan.	**9.084**	8.908	9.778	10.987	9.105
Feb.	8.881	8.915	9.677	10.260	9.294
Mar.	8.778	8.797	9.886	10.024	9.026
April	8.568	8.795	10.277	10.198	8.844
May	8.413	8.795	10.468	10.163	8.678
June	8.362	9.154	11.014	9.648	.....
July	**8.338**	9.100	11.043	9.398	.....
Aug.	8.479	9.188	11.092	10.925	.....
Sep.	8.569	8.928	11.575	10.350	.....
Oct.	8.747	8.990	11.596	10.029	.....
Nov.	8.888	9.306	11.372	9.590	.....
Dec.	8.881	9.675	11.219	9.053	.....
Year	8.665	9.046	10.750	9.977	.....

SECONDARY METALS IN 1913.

Metal Recovered from Waste and Scrap to the Value of Nearly $73,000,000 in 1913.
(From U. S. Geological Survey).

The value of the "secondary metals," exclusive of gold, silver, platinum, and iron, recovered in the United States in 1913, was $72,845,000, according to J. P. Dunlop, of the United States Geological Survey. Even this large figure is a decrease compared with 1912, when the value was $77,795,000.

We give the report in part as follows:

Nearly 140,000 Tons of Copper Recovered.

The total amount of secondary copper recovered in 1913, on the assumption that the brass remelted had an average copper content of 70 per cent., was 136,500 tons, of which 18,661 tons (about 4,000 tons more than in 1912) was recovered by plants refining primary metals and the remainder by plants treating only secondary materials. The copper produced by smelters of the latter class includes 36,716 tons of pig copper, 11,603 tons of copper in alloys other than brass, and 69,520 tons of copper in remelted brass. These figures indicate a decrease for 1913 of about 6,000 tons of pig copper, and 1,500 tons of copper in brass and an increase of about 2,300 tons in alloys other than brass. At least 45,000 tons was recovered from clean scrap made in the course of manufacture of copper and brass ware, so that only about 91,500 tons was obtained from ashes, cinders, and scrap, or from material that had actually been used and discarded. The value of the copper, both as metal and in alloys, is computed at the average yearly price quoted for casting copper by the "American Metal Market."

According to the Bureau of Foreign and Domestic Commerce, the exports of scrap brass fit only for remanufacture, for the calendar year 1913, were 10,943 tons, and the imports were 3,395 tons. While many railways sell or turn in the larger portion of their brass and copper scrap and other metal waste to dealers in part payment for new material, the reports received show that the railways utilized in their own shops and foundries over 12,670 tons of brass, in addition to 900 tons of copper and 2,828 tons of copper in alloys other than brass.

The production of copper from secondary sources in 1913 was equal to about 17 per cent. of the refinery output of primary copper in the United States from all sources, or about 22.4 per cent of the primary copper smelted from domestic ore.

Recovery of Old Tin Important Factor in Supply.

Apparently there were no domestic tin ores smelted in the United States in 1913, though some tin concentrates were shipped from Nome, Alaska, Gaffney, S. C., and Spearfish, S. Dak., to Great Britain for treatment. This condition makes secondary tin an important factor in supplying domestic consumption. The secondary tin recovered in 1913 was equal to 27.2 per cent. of the tin, as metal or as oxide, imported into the United States during the year (52,141 short tons). Secondary tin recoveries decreased from 15,401 tons, valued at $14,301,368, in 1912, to 14,178 tons, valued at $12,567,379, in 1913. The quantity recovered as tin was 6,415 tons and that in alloys and chemical compounds 7,763 tons. The value of the recovered tin here given is arbitrary and is based on the yearly average price given by the American Metal Market.

It will be noted that the secondary tin in alloys increased about 700 tons, an increase similar to that of lead in alloys. The secondary pig tin decreased about 1,900 tons, for although the reports showed that the recoveries from scruff and drosses compared favorably with former years, the recoveries from clean tin scrap, tin foil, and tin pipe were appreciably less in 1913 than in 1912. This condition was natural, for the use of tin foil and block tin pipe has not expanded and the recoveries from those sources are relatively small. The quantity of clean tin scrap treated was considerably less in 1913 than it was in 1912. This was partly due to the burning of the Vulcan Detinning Co.'s electrolytic plant at Sowaron, N. J., and to decreased operations of several other users of clean scrap tin. There was no great incentive to treat tin scrap which had been contracted for or purchased at prices that precluded much profit at the prevailing lower prices of pig tin in 1913.

The recovered tin includes the tin content of products made by several plants from tin scrap. These included some tin oxide, putty powder, etc., but consisted

mainly of tin chloride. The production of these compounds is calculated as metal and not separately stated, in order to avoid disclosing confidential information. As the products are made from scrap tin and thus conserve the primary metal, they are properly regarded as recovered tin. Two forms of tin chloride are handled commercially—stannic and stannous salts. Stannic chloride is usually sold either as a water solution, called bichloride of tin, or as an anhydrous sirupy liquid, termed tetrachloride of tin, and is used principally in the silk industry. Stannous chloride is sold in the form of crystals and is used in dyeing and calico printing.

Most of the tin oxide, tetrachloride, and other products were made from clean tinplate clippings or from tin liquors left in dyeing or weighting silks. The dry chlorine process was used to recover the tin from the clippings in some places. In others reverberatory furnaces were used to remove the tin coating, and a large quantity of tin was recovered in the form of a tin powder by the electrolytic treatment of clean scrap, the powder being sent to secondary smelters. The largest recoveries of tin were made from the scruff and drosses that occur in making tin and torne drosses that occur in making tin and terne plate and amounted to over 5,000 tons. Only one firm reported using old tin containers, from which the tin and solder were first sweated and the black plate remelted to make sash weights. Comparatively large quantities of tin scrap and old tin cans are used in the western mining regions for the precipitation of copper from mine waters. Such scrap is plentiful, cheap, and fairly well adapted for the purpose. However, the tin coating of the scrap does not enter into the reaction and is lost entirely.

The principal alloys in which secondary tin was recovered were babbit and other bearing metals, bronze, solder, pewter, and electrotype metal.

Aluminum Recovery.

For the first time the Survey obtained statements of the quantity of secondary aluminum recovered as pig aluminum or in alloys, and while the inquiry may not have reached all producers the result showed that the percentage of secondary aluminum used compared with virgin metal was fully as large as in other nonferrous metals. The recoveries in 1913 amounted to 4,654 tons.

PRODUCTION OF SECONDARY METALS IN 1913.

Metal Recovered from Waste and Scrap to the Value of Nearly $73,000,000 in 1913.

The value of the "secondary metals" exclusive of gold, silver, platinum, and iron, recovered in the United States in 1913 was $72,845,000, according to J. P. Dunlop, of the United States Geological Survey. Even this large figure is a decrease compared with 1912, when the value was $77,396,000.

The figures for 1912 and 1913 are given below.

	1912		1913	
METAL.	Short tons.	Value.	Short tons.	Value.
Secondary copper, including that in alloys other than brass	66,441	$21,593,325	66,980	$20,536,068
Remelted brass	101,523	27,279,516	99,315	24,651,969
Secondary lead	30,266		33,104	
Recovered lead in alloys	36,902	6,045,120	39,730	6,409,392
Secondary spelter	32,251		50,005	
Recovered zinc in alloys other than brass	3,912	7,750,494	2,743	6,019,776
Secondary tin	8,333		6,415	
Recovered tin in alloys	7,068	14,301,368	7,763	12,567,379
Secondary antimony	13		45	
Recovered antimony in alloys	2,493	426,020	2,660	460,932
Secondary aluminum	.....	.....	2,198	
Recovered aluminum in alloys	.....	.....	2,456	2,199,480
Total value		77,395,843		72,844,996

TRADE NOTES.

The Western Reserve Steel Company which, as announced recently, will build a six-mill sheet plant at Warren, O., and absorb the Sykes Metal Lath & Roofing Company, has opened offices in the Stone Building, Warren, O., and will conduct its operations at that point rather than at the existing offices of the Sykes company.

The Franklin Steel Works, Franklin, Pa., expects to start its new 9-inch bar mill about June 20th and the combination 18-inch and 12-inch mill about July 1st. The plant was partially destroyed by fire in May, 1913. The product is concrete reinforcing bars in plain and twisted forms.

Articles of incorporation have been filed by the Galena Iron Works Corporation, Platteville, Wis., capital stock $60,000. The incorporators are T. M. Priestly, W. V. Parkinson and Edith Marcussen.

The Perfect Tool Corporation, of Lancaster, Pa., has been incorporated at $30,000 to make shears and other tools. Officers are: President, William H. Forman; vice president, Frank H. Knight; secretary and treasurer, William B. Ruse. Offices are at 14 East Grant street, factory at 415 North water street.

The Pioneer Iron Company, North Marquette, Mich., will blow out its furnace July 1st for repairs.

The skelp mill of the Carnegie Steel Company, which had been closed for several days, has resumed operations.

The plant and real estate of the New York State Steel Company valued at $4,000,000 have been sold to James S. Thompson, representing a committee of business men who propose to reorganize the concern. New rolling mills will be built.

The Enterprise Smelting & Refining Company, New York, has been incorporated with capital of $5,000; by L. J. and J. Jacoves, I. B. Novegrod of Brooklyn.

The Pennsylvania Products Company, of Pottstown, Pa., has been incorporated; iron and steel; capital $5,000; by James A. Bailey, J. Albert Whitacre, Pine Forge; Albert L. Trego, Pottstown; and Howard Y. Spare, Royersford.

The Lewis-Hall Iron Works, Detroit, has been incorporated with a capital stock of $250,000 to take over the structural iron and steel business formerly conducted by and in the name of Henry B. Lewis. The company, which already has a large plant, plans to broaden its field of operations and gradually increase its manufacturing facilities. Henry B. Lewis is president and treasurer, and Harry S. Hall, vice-president and general manager.

The plant of the Michigan Brass & Foundry Company, Detroit, has been taken over by a syndicate headed by Louis Wurzer and Frank Berry. The factory, which has not been operated recently, will at once be reopened.

The Pirkl Foundry Corporation, Astoria, N. Y. City, has been incorporated with a capital stock of $25,000 by William Bogen, D. R. Schnepf, and others. It has taken over the business and plant of the John Pirkl Iron Works.

The Two Rivers plant of the Aluminum Goods Manufacturing Company, Two Rivers, Wis., is operating double shifts to fill an order from the war department calling for the delivery of 4,000 aluminum canteens daily until further notice.

The New Rochelle Foundry Company, New Rochelle, N. Y., which recently was incorporated with a capital of $15,000, will engage in a general castings business and also will manufacture some specialties. F. J. Holler, New Rochelle, is interested in the new company.

The Ford Smith Machine Co., Ltd., Hamilton, Ont., has been incorporated; machine and tools, capital $100,000; by Percy Ford Smith and S. W. C. Scott.

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THE TRADE OUTLOOK.

When the history of 1914 is written we are inclined to think that June will prove to have been the month when the depression in business, that began in the closing months of 1913, reached its climax, and that from then on there was a gradual recovery of confidence caused by the certainty of bumper crops. Although in this month the factory operations sunk to the lowest level in years, there was an improvement in purchases that changed the condition of order books from months of decreasing unfilled orders, to one of equilibrium or slight increase. That although the largest commercial failure of a generation took place, which in ordinary circumstances might have created panicky conditions, the position of the country was found to be so fundamentally sound, prices so low, stocks so small, in other words the business situation so completely liquidated, that this and the general increase in failures failed completely to create any financial or commercial disturbances.

That in that month the revolt of business against, and the loss of confidence in the administration, also reached its climax, and after months of mute sulkiness and disgust, broke out into a roar of protest and ridicule, on the statement of the President in defending his determination to pass further restrictive legislation that the troubles that affected business were "purely psychological" and therefore imaginary. That political affiliations were forgotten, and under the leadership of the business and independent press, the situation was so completely aired and agitated, that the Administration for the first time in months was obliged to acknowledge that the business interests of the country were of sufficient importance to at least be given a chance to

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be heard. That this tardy recognition while it did not perhaps affect pending legislation, made a very favorable effect on the mind of business, since it indicated that in the future some recognition was to be given to those whose knowledge on the legislative matters in question, and others that may come up in the future, were tenfold greater and more valuable, than those in whose power it is to make the laws.

There is a change in the attitude of the financial and business interests. Hope and confidence is succeeding to discouragement and doubt. We know from experience that neither optimism nor pessimism is a lasting state of mind in the business world, and we have reached the stage where in our opinion we are to see a change. Our legislators have done their worst, but nature and the logic of the situation is on the side of a revival in trade, and although we are in what should be the dullest time of the year, everything points to increased activity.

It is impossible to keep American business much longer in a condition of depression. Greater wealth than we have ever received before is on the eve of being showered on us by a beneficent Providence, money is easy, our shelves are bare, ninety millions of people are demanding the necessities and comforts of life, and their enterprise and determination to secure them is greater than ever. Efforts of our wise men in Washington will be unavailing to retard the movement, and should they still continue to harass and impede, in other words if the experience of the last six months has taught them nothing, then the Juggernaut of business, public opinion, backed by the common sense of the workmen of this country, will crush them into insignificance and oblivion.

We have become tired of standing still and there is reason that we should. The outlook is that we are about to continue our progress to what promises a greater advancement along business endeavor and achievement than anything that has gone before.

There is a lot of lost time to be made up, and it is not impossible that in the movement to take up in the next six months the slack that has accumulated, extreme activity may have to be experienced during the closing months of this year. Those in the iron and steel and metal trades who remember that they are dealing in and manufacturing commodities that are not luxuries, but stern necessities, for which in the past there has been an actual need of 40% at least greater than the demand of the past six months, may well be justified in preparing not only for a return to such normal conditions of demand, but also an increased demand above normal, to make up for what has been not forthcoming in the past, but for which in the past the necessity existed although it has been held up temporarily.

A POOR EXPORT SHOWING.

Our iron and steel exports have been making a poor showing compared with those of Great Britain. While there is a world wide depression, and the total iron and steel exports of all countries have been declining, the United Kingdom seems to have been holding its own very well indeed.

From 1912 (our best year for iron and steel exports) to 1913 we had a decline of 6.4 per cent, while British exports increased 2.4 per cent. Comparing 1913 with the average for this year, as far as the figures have been gathered, the United States shows a decrease of no less than 39 per cent, while the United Kingdom shows a decrease of only 1.6 per cent. This year's figures go through April in the case of the United States, and through May in the case of the United Kingdom. Our import and export figures have always been relatively slow, and in the past few days we have received word from the government that the publication of the "Advance Sheets" has been discontinued with the April presentment, so that in future one will have to depend upon the regular Monthly Summary, which has hitherto appeared about two weeks later than the Advance Sheets. The notice states that it has been found practicable to issue the Monthly Summary as early as the Advance Sheets have hitherto been published, but that is no adequate excuse for discontinuing the Advance Sheets. If the Monthly Summary can now be issued two weeks earlier than formerly, the Advance Sheets could presumably be issued two weeks earlier likewise.

British iron and steel exports are, of course, much larger than our own. When

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our exports jumped rapidly, from less than one and a half million tons prior to 1910, up to 2,948,166 gross tons in 1912, hopes were raised that we might eventually pass Great Britain, seeing that the British exports in 1912 were 4,933,112 gross tons, being thus 67 per cent above our own. In 1913, however, the British excess rose to 83 per cent, and the monthly rate thus far this year has been 195 per cent above our own. In other words British exports in 1912 were two-third greater than ours, but now they are practically three times as great.

BRITISH IRON AND STEEL EXPORTS

According to the Board of Trade returns, in tons of 2,240 pounds:

1912—	Pig iron.	Rails.	Tin plates.	Total*
Jan. ..	105,159	35,658	44,820	449,903
Feb. ..	66,992	34,951	42,685	347,854
Mar. ..	162,687	55,332	47,744	516,764
April ..	91,447	24,582	26,38[illegible]	300,816
May ..	115,412	17,736	23,986	338,241
June ..	103,936	22,743	30,471	361,057
July ..	110,675	39,718	50,161	433,446
Aug. ..	111,261	31,315	48,402	42[illegible],929
Sept. ..	101,365	43,917	39,325	460,278
Oct. ..	123,960	40,930	45,479	487,228
Nov. ..	88,006	30,996	45,534	428,855
Dec. ..	82,935	29,799	35,920	391,128
Year	1,262,[illegible]83	407,175	481,123	4,933,112
1913—				
Jan. ..	101,964	35,523	46,260	448,186
Feb. ..	63,961	41,849	33,374	363,551
Mar. ..	90,012	34,064	41,579	398,621
April ..	101,413	46,081	41,882	470,040
May ..	97,093	45,025	50,441	463,197
June ..	91,913	52,073	41,483	427,148
July ..	96,135	53,570	43,166	455,626
Aug. ..	101,843	44,637	35,274	395,656
Sept. ..	106,525	26,283	36,572	394,849
Oct. ..	99,588	40,695	40,733	435,564
Nov. ..	100,235	40,140	44,317	430,113
Dec. ..	74,133	40,744	38,840	373,354
Year	1,124,815	500,614	494,921	5,050,919
1914—				
Jan. ..	82,182	57,904	43,164	467,449
Feb. ..	59,832	35,484	41,744	353,861
Mar. ..	92,364	40,207	40,863	414,902
April ..	93,396	30,682	44,296	394,535
May ..	95,037	56,881	48,628	437,648
5 mos.	422,811	221,158	218,695	2,068,395

x Includes scrap, pig iron, rolled iron and steel, cast and wrought iron manufactures, bolts, nuts etc., but not finished machinery, boilers, tools, etc.

BIRD'S-EYE VIEW OF WORLD CONDITIONS.

In the basic elements of economic progress the United States ranks high among the nations of the world, being one of only five countries having an area in excess of 3 million square miles, and the only nation of the western world (except Russia) having a population of over 100 million. In the interchange of products among its own people it leads the world, its home trade at the present time being estimated at nearly 40 billion dollars, or equal to the international exchange of the world and approximately 10 times the value of our own foreign trade now valued at 4 billion dollars.

That our present foreign trade is far short of its immediate possibilities is evident from a consideration of its area, commerce, and other economic factors in comparison with that of other leading countries, as set forth in comparative tables published in the "Statistical Abstract of the United States, 1913." compiled by the Bureau of Foreign and Domestic Commerce. Thus the present export trade of the United States (2½ billion dollars) represents about $25 per capita. A per capita basis equal to that of Argentine would raise the exports of the United States to 5 billion dollars: and one equal to that of Belgium would bring its exports to 10 billion dollars a year; while our aggregate foreign trade, when upon a per capita basis as large as that of Canada would be considerably over 13 million a year.

Other comparative tables in the "Statistical Abstract" further emphasize the commercial power of the United States and its strong international position. In railway mileage, for example, we possess one-third of the world's total, our 258,000 miles being ten times as much as the mileage of the United Kingdom and six times that of Germany. The Western Union Company alone has 238,000 miles of telegraph lines, or double the total in Russia, next in order. More than one-third of the world's mail service is performed upon routes located in the United States, while our public debt of one billion dollars is smaller than that of Italy, Austria-Hungary, Spain, Germany, Australia, Japan, British India, or Great Britain, and is less than one-sixth that of

France, and one fourth that of Russia.

Temporary recession have frequently marked the course of American commerce, but the tendency, according to historical tables published in the "Statistical Abstract," is even higher. In 11 years, from 1890 to 1901, our foreign trade grew from 1½ billion to 2¼ billion dollars, an increase of 50 per cent., while in the 11 years from 1902 to 1913 it increased from 2¼ to 4¼ billions, a gain of 90 per cent.

The foundations of this growth are laid deep in the soil and natural resources of our country and in the character of our people. Thus the American Union, from 13 states having 325 thousand square miles and 1 million people, has expanded to 48 states and the territories of Alaska, Porto Rico, and Hawaii, with an area of 3 2/3 million square miles and 100 million people. In the period since 1870 the value of our farm products has risen from 2 billion to about 10 billion dollars a year; the output of coal from less than 30 to nearly 500 million long tons; copper from 12½ thousand to over one-half million tons; pig iron from 2 to 31 million tons; petroleum from 221 million to 9¼ billion gallons; and manufactures from 4 billion to over 20 billion dollars.

BALANCE OF TRADE.

Foreign trade in May was smaller than in April, owing mainly to a decrease in imports, but compared with May a year ago imports were much larger, while exports were considerably smaller. The result was a balance in favor of imports of nearly $2,000,000, as against a balance in favor of exports a year ago of nearly $61,000,000. Following will be found the merchandise import and export figures for May and 11 months ending May, with comparisons for

Exports	$161,732,049	191,607,422
Imports	164,209,515	153,723,713
Excess imports ...	2,476,896	
Excess exports ..		60,883,709

Eleven months:	1914.	1913.
Exports	1,466,202,414	1,412,442,089
Imports	1,285,784,064	1,359,101,457
Excess imports ..	19,413,350	
Excess exports....		26,959,368

Cement Production.

Washington.—All records for production of portland cement were broken in 1913, the total output having been 92,949,102 barrels, valued at $93,001,169, this com-

COMMERCIAL FAILURES.

Failures for the second quarter and liabilities for the same period were naturally less than for the first three months of this year, though exceeding those for the second quarter of last year. The six months' total of failures is larger than that for the corresponding period of last year, and exceeds the number for the first six months of the after-panic year 1908 by 183, while liabilities were the heaviest since the latter year, which, it might be recalled, showed the largest liabilities for the first half of any year ever recorded. According to Bradstreet's report June failures number 1,148, a decrease of 2.9 per cent. from May, but an increase of 17 per cent. over June a year ago. Liabilities were $33,196,460, an increase of 89 per cent. over May, and more than double those of June last year.

In the following table will be found the failures monthly and quarterly for the first six months of the past two years:

1914.	No. of failures.	Assets.	Liabilities.
January	1,729	$20,421,273	$35,196,682
February	1,206	10,820,258	20,159,736
March	1,260	13,530,577	26,159,420
First quarter	4,195	44,772,108	81,515,838
April	1,221	8,628,578	17,705,784
May	1,181	9,493,349	17,491,672
June	1,148	23,400,902	33,196,460
Second quarter	3,550	41,522,829	68,393,916
Six months ..	7,745	86,294,937	149,909,754
1913.			
January	1,566	8,404,342	15,619,192
February	1,114	16,159,858	29,802,170
March	1,235	8,308,715	19,411,481
First quarter	3,915	32,872,915	64,832,843
April	1,148	12,473,968	20,404,323
May	1,104	7,574,045	14,589,588
June	975	6,505,193	14,017,313
Second quarter	3,227	26,553,806	49,011,224
Six months ..	7,142	59,426,721	113,844,067

Canadian Failures Increase.

Statistics compiled by R. G. Dun & Co., indicate a considerable expansion in the commercial mortality of the Dominion of Canada during the first half of 1914, as compared with the corresponding six months of preceding years, a total of no less than 1,218 failures contrasting with 817 in 1913, while the aggregate indebtedness was $11,688,225 against $9,593,498 in the earlier period.

DIGEST OF BUSINESS CONDITIONS.

FAVORABLE.

1. **Crop Outlook.**—Largest winter wheat crop on record virtually harvested. Other growing crops with ideal weather conditions making splendid progress. Early damage to cotton crop being rapidly recovered.

2. Indications of willingness of **Administration to hear what business has to say,** in other words to recognize the business interests of the country as a factor to be heard on legislation affecting their interests.

3. Politics.—Prospect of Republican majority being returned in House of Representatives through November election, and a rest to business from radical legislation for a while.

4. **Labor Conditions** improving through demand to harvest bumper crops. The fact that conditions of the past six months have been survived without reduction in wages, a hopeful sign.

5. Gold.—**Outflow of gold stopped;** $80,000,000 shipped since January 1st has not been felt in monetary circles and will return as Europe must buy heavily of our wheat and cotton.

6. **Surplus Funds.**—Not since 1908 have New York banks held such large deposits for western account.

7. **Easy Money Market** in spite of heavy Claflin and other failures.

8. **Adverse news taken with composure,** and evidences of eagerness to respond to good news.

9. **Liquidated Condition of Business.**—Never was there less speculative excess, smaller stocks, prices low.

10. **Rapid decline in idle cars** imminent to move crops.

11. **Mexican situation improving.**

12. **Strong Position of Foreign Banks.**—

13. Purchases of Merchandise increasing, result of actual urgent needs that can no longer be held up, especially in iron and steel trade and shown by the equilibrium now on unfilled order books.

14. **Sentiment improving,** indications that June marked climax of depression, and that from now on confidence and business will slowly improve.

15. **Improvement in price and demand for copper.**

UNFAVORABLE.

1. Determination of Administration to push new business regulation laws in the face of universal protests of the business interests of the country, accompanied with the effort to make the people generally believe that conditions are good and that they have not been affected by recent radical legislation. An effort to array the administration and the wage earners against so-called selfish business interests.

2. **Heavy falling off in exports and heavy increase in imports** continues, with growing adverse international balance.

3. **High cost of living,** and cost of extravagance and high living.

4. **Railroad earnings** show increased shrinkage, some relief must come in increased revenue. The horse to pull our business cart exhausted through lack of nourishment.

5. **Increased Failures.**—The credit of the dry goods trade curtailed by Claflin failure and fears that far reaching effects may yet have to be reckoned with.

6. **Tariff.**—Effect of tariff reduction with our manufacturers being felt and to continue for a long while, and will become serious should business abroad continue to fall off.

BUSINESS TRENDS.

THE STOCK MARKET.

With one exception the total stock transactions on the New York Stock Exchange during June were the smallest in 17 years and below the totals reported for any June since 1894. During the month just closed 4,000,073 shares exchanged hands, that representing the smallest month's business since November of last year when sales aggregated only 3,765,000 shares, the lightest total reported since April 1897. The June figures indicate a drop of almost 16 per cent from May and nearly 60 per cent from June, 1913. Trading in bonds dur'ng June amounted to a par value of $53,848,000, an increase of $9,453,000 over May and of $11,400,000 over June 1913. The following are Bradstreet's figures for the elapsed months of the calendar year:

	Stocks.	Bonds.
January	16,105,756	$89,362,000
February	6,232,873	69,418,000
March	5,862,153	60,573,000
April	7,138,354	55,767,000
May	4,759,349	44,395,500
June	4,030,073	53,848,000
Total	38,098,558	373,363,500

OUR FOREIGN TRADE.

Washington, D. C.— Imports increased during May over May of last year, and exports decreased in the corresponding periods, according to preliminary figures announced by the Bureau of Foreign and Domestic Commerce, Department of Commerce.

May imports aggregated $163,637,386, against $133,723,713 in May of last year, free merchandise representing $102,507,928, or 62.7 per cent of the month's total, against $69,006,928, or 51.6 per cent, in May a year ago. Domestic exports in May totaled $157,406,572, a decrease of $33,649,228 as compared with May, 1913. Foreign exports totaled $4,243,631, against $3,551,622 in May 1913. The above figures show a decrease in the May imports of $10,259,090 as compared with those for April. The May exports show a decrease from those for April of $1,560,731.

For the eleven months ending May, 1914, imports totaled $1,735,885,740, as against $1,681,762,387 last year; and domestic exports, $2,175,492,419, against $2,268,333,478 last year. Foreign goods exported aggregated $31,932,269 in the eleven months, compared with $34,145,755 last year.

The excess of imports over exports in May was $1,987,183, as compared with an excess of imports over exports in April of $11,345,606; and the excess of exports over imports in 11 months' period is $471,538,948.

Gold imports during the month totaled $1,972,411, compared with $4,561,260 in May 1913, while gold exports were $16,835,902, against $12,467,492 in May last year.

NEW INCORPORATIONS.

Papers filed in the Eastern States last month for companies with $1,000,000 or over, including increases in capital, represented a total of $70,050,000. This is an increase of $7,350,000 over the previous month, but $9,500,000 less than in June a year ago. The grand total of all companies chartered last montth with a capital of $100,000 or over, covering all States, including those of the East, amounted to $125,392,000, against $162,965,000 in May. In June last year it was $123,314,000.

The total incorporations since January 1st reach $498,000,000, a decrease of $642,000,000 compared with last year and $740,000,000 less than in same period of 1912. This phenomenal decline in new corporations strikingly shows the lack of initiative or new enterprise in business.

Following are the comparative figures as specially compiled by The Journal of Commerce and Commercial Bulletin of companies incorporated in the Eastern States during the last three years with an authorized capital of $1,000,000 or more:

	1914.	1913.	1912.
Jan.	$120,050,000	$332,450,000	$210,520,000
Feb.	51,575,000	191,500,000	166,300,000
Mar.	57,700,000	166,030,000	159,578,000
April.	136,185,000	198,718,000	281,457,000
May	62,700,000	172,200,000	140,284,000
June	70,050,000	79,550,000	280,170,000
Total	$498,260,000	1,140,448,000	1,238,309,000
July		83,650,000	253,518,000
Aug.		63,500,000	164,500,000
Sept.		42,750,000	115,050,000
Oct.		70,856,300	169,495,000
Nov.		77,800,000	154,200,000
Dec.		55,250,000	200,100,000
Total		$1,534,254,300	$2,295,172,000

BUSINESS TRENDS.

IDLE RAILWAY CARS.

The fortnightly bulletin of the American Railway Association reports a new surplus of idle cars on June 15th of 232,334, a decrease of 10,238 since June 1st. The decrease occurred principally in the Central West:

1914—		1913—	
June 15	232,334	Oct. 1	10,374
June 1	†242,572	Sep. 15	40,150
May 15	238,642	Sep. 1	58,306
May 1	228,879	Aug. 15	54,425
Apr. 15	212,869	Aug. 1	58,445
Apr. 1	139,518	July 15	69,405
Mar. 15	‡124,865	June 30	63,704
Mar. 1	153,907	June 14	63,927
Feb. 15	197,052	May 31	50,908
Feb. 1	209,678	May 15	50,294
Jan. 15	214,889	May 1	39,799
Jan. 1	188,830	April 15	57,498
		April 1	57,988
1913—		Mar. 15	37,775
Dec. 15	†101,545	Mar. 1	31,381
Dec. 1	57,234	Feb. 15	22,183
Nov. 15	22,652	Feb. 1	37,260
Nov. 1	*1,842	Jan. 15	28,439
Oct. 15	*6,048	Jan. 1	17,053

* Net shortage; † Maximum surplus for year; ‡Minimum surplus for year.

BANK CLEARINGS.

Bank clearings make quite a satisfactory comparison with both immediately preceding years, the total for June, according to the statement compiled by "Dun's Review" which includes returns from 129 leading centers in the United States, amounting to $13,869,912,279, an increase of 1.7 per cent as compared with the same month last year and of 2.1 per cent as contrasted with the corresponding month in 1912. The influence of extreme dulness in stock market operations and somewhat quiet conditions in certain industrial and commercial lines is offset by the month including one more business day, and New York city reports a gain of 1.2 per cent and a loss of 1.5 per cent respectively, and as many important centers throughout the country report more or less improvement, the aggregate of bank exchanges at all outside cities is 2.4 per cent larger than last year and 7.1 per cent in excess of two years ago.

COMMODITY PRICES.

Bradstreet's latest index number reveals another drop, the sixth within as many months. The figures as of June 1st work out at 8.6214 as against 8.6224 May 1st, a very slight change and one that reflects a decline of a small fraction of one per cent. The current number is the lowest registered since July 1911 and it indicates a descent of 4.9 per cent from June 1st last year, when prices were at the lowest point touched in the 15 months preceding the date given. Comparison with June 1, 1912 discloses a loss of 5.3 per cent but contrast with that time in 1911 shows an increase of three-tenths of one per cent.

The following table gives "Bradstreets" index numbers (the totals of the prices per pound of ninety-six articles) since January 1, 1909:

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	8.263	9.231	8.836	8.949	9.493	8.885
Feb.	8.302	9.073	8.766	8.958	9.459	8.861
Mar.	8.217	9.111	8.603	8.902	9.405	8.832
Apr.	8.316	9.260	8.522	9.098	9.297	8.756
May	8.302	9.039	8.458	9.270	9.139	8.622
June	8.396	8.911	8.529	9.102	9.072	8.621
July	8.457	8.925	8.594	9.112	8.952	
Aug.	8.504	8.822	8.657	9.159	9.011	
Sep.	8.591	8.952	8.819	9.215	9.100	
Oct.	8.748	8.927	8.806	9.451	9.152	
Nov.	8.964	8.877	8.892	9.478	9.225	
Dec.	9.126	8.784	8.982	9.546	9.229	
Year	8.515	8.989	8.713	9.186	9.211	

PIG IRON PRODUCTION.

Daily rate of production of coke and anthracite pig iron, gross tons:

	1910	1911.	1912.	1913.	1914.
Jan.	84,148	56,752	66,384	90,172	60,808
Feb.	85,616	64,090	72,442	92,369	67,457
Mar.	84,459	70,036	77,591	89,147	75,738
April	82,792	68,836	79,181	91,759	75,665
May	77,102	61,079	81,051	91,039	67,506
June	75,516	59,585	81,358	87,619	.....
July	69,305	57,841	77,738	82,601	.....
Aug.	67,963	62,150	81,046	82,057	.....
Sep.	68,476	65,903	82,198	83,531	.....
Oct.	67,520	67,811	86,722	82,133	.....
Nov.	63,659	66,648	87,697	74,453	.....
Dec.	57,349	65,912	89,766	63,987	.....

THE FUTURE OF FOREIGN TRADE.

James J. Hill Gives Sound Advice and Interesting Facts.

At the National Foreign Trade Convention Mr. James J. Hill, President of Great Northern Railway made the following remarks. We consider Mr. Hill's experience and intellect one of the greatest assets this country possesses and in times like these when business experience seems to be ignored and at a discount with our legislators, we are glad to have the opportunity of giving publicity to what we consider should be read by everyone interested in the welfare of our country:—

"One way of looking at the foreign trade of any country or of the world considers actual present conditions and immediate results. Another way studies future developments, adapting itself to needs and tendencies as they appear above the horizon. By one or the other of these methods the foreign commerce of every country is directed. The nation which knows how to combine the two will be most prosperous and secure against such unexpected reverses as that which reduced Venice from the trading soverignty of the world and have changed supremacy in commerce from one country to another.

The foreign trade of all countries in the world was estimated in 1912 at more than $35,000,000,000, and rapidly increasing. It has doubled in the last quarter of a century. That of the United States has about doubled every twenty years since 1830. The total imports of countries other than the United States are put by Mr. Whelpley at $16,000,000,000 per annum; of which the United States furnishes $2,000,000,000. We naturally want to increase that share as much as possible. There is room for it, since the foreign trade of England per capita averages about $125, that of Germany $67 and that of the United States $41. We are competing freely to-day in the same markets with Great Britain, Germany and France. So far as the trade of the world as a whole is concerned, the bars are down. The narrow, the limited, the local view of a nation's foreign trade becomes no longer of value or force. The trade telescope has but one focus for the distant object and the near. Commercially speaking, the nations of the earth have been brought most close to each other.

A new order of things has been brought about by the progress of human information, invention, discovery and skill. Even a century ago the average man was almost as strictly localized as a tree. Only exceptional individuals cut themselves loose from their environment. Intercommunication was slow and difficult. Foreign commerce was confined to a small range of articles. Life was narrow and limited in its desires. Trade between nations was larger in amount but still retained many features of the days when Phenicia sent beyond the Pillars of Hercules for her supply of tin, or when the ships of Rome carried to her port the grain to support her growing population.

To-day commerce has burst the trammels once imposed upon it by the small range of demand and supply and the parochial conception of trade. The multiplication of enormously increased means of transportation and the cheapening of the cost of carriage have conspired with greater scientific knowledge and new machines, new methods, to distribute broadcast over the world its mighty stores of wealth. Commodities as well as people are in constant and lively motion. No demand can arise anywhere in the four quarters of the earth that it is not presently satisfied. The "First Book of World Law" has been published by the Peace Foundation and there is the third article in its Declaration of rights: "Each part of the world needs all the other parts; unimpeded exchange of the world's goods promotes world prosperity; therefore obstacles to such exchange must be removed." Commercially the world is becoming one vast clearing-house, through which must pass without discrimination the orders and the way-bills and the receipted statements of all its busy people.

The character and direction of the larger currents of trade are no more under the control of any country than are the currents of the atmosphere or the ocean. Purchases are regulated by individual and national needs. Sales will be regulated and production determined by natural advantages; the first item in which is a large supply of raw material of high quality. Wherever this exists, it will control, until the advantage is offset somewhere else, the trade in this particular commodity. Fol-

lowing this plain rule it is not difficult to see where to look for the future commercial strength of the United States.

We must, for the present at least, depend for our foreign sales chiefly upon a few great staples. In food products we are already falling out of line. Our increasing population, drawing upon a soil already much impoverished, turns food production from a resource into a problem. Down to ten years ago we exported from 25 to 40 per cent of our wheat crop each year. Since then the percentage has rarely exceeded from 10 to 15. The rapid decline of our position as a producer of breadstuffs has been checked a little by the tremendous efforts made to induce a better agriculture and a more intelligent care of the soil. Federal and State Governments, stirred by the earnestness of individuals and by the practical example of great railroad companies, are helping to make better farmers and to save and restore the land. Our export trade already feels some benefit from this attempt, pitifully small although the results of it seem to a man who goes through the country and sees how the average farm is handled. But nothing can prevent the practical extinction of our grain exports. Cattle and dairy products are being imported.

The United States has an apparently sure supremacy in the production of corn. More than 60 per cent of the world acreage of this cereal belongs to us. Yet we imported more than eight million bushels of corn between October 3, 1913, and the end of last February. So far as breadstuffs are concerned, we cannot rely upon them in future to supply any considerable portion of our sales to other countries. Our farm processes are still almost incredibly antique and unproductive. According to a careful study by Dr. Carl Helfferich, of Berlin, the yield per acre of wheat in Germany in 1912 was more than double that in the United States; that of rye nearly 80 per cent greater, of barley over 30 per cent, of oats nearly 50 per cent, and of potatoes only a little short of 100 per cent. Such returns from a soil cultivated long before Tacitus wrote, in a climate inferior to ours for grain production, tell the whole story of American farm methods. The best that we can hope for, continuing the slow improvement now in progress, would be to keep production from lagging too far behind increase of population. If we double our acre product, which could easily be done, the chances are that, before our farmers can be educated to the point of doing it, our population will double also. It has increased over seven millions since 1910. This is at the rate of about two per cent a year, and the most sanguine person cannot, under present methods, expect from our farm production any such continuous rate of growth.

On our other great natural resources our foreign trade is now and must continue to be based. The cotton consumption of the world in the last year is estimated at something under twenty million bales, and more than fourteen million bales were picked from the fields of our Southern States. But the immense increase in price has set every manufacturing country of the world at work to provide its own supply. England has India and Egypt, both capable of large cotton production. So are great tracts in South America and Africa. We cannot expect to retain a practical monopoly of the production of this staple which we once enjoyed. From the United States comes one-half the world's supply of copper. Of 351,000,000 barrels of petroleum, we contributed over 222,000,000. The pig iron production of the United States in 1912 was 44 per cent, and its steel production 54 per cent of that of the entire world. We are far ahead of other countries in these items, not alone because of skill or success in manufacturing, but because nature gave us the raw material in abundance, elsewhere unknown. The history of countries like Spain teaches what must be expected where reliance is placed upon resources that cannot be reproduced as can the products of the soil.

A rather short-sighted optimism has concentrated attention for many years on the increase of our exports of manufactured products. It is with no intention of belittling the really important conquests that our large manufacturers have made that attention is called here to the insufficient and precarious nature of this resource. Exports of manufactures imply competition with all the world and all over the world. It has been proved that no artificial barriers can prevent this ultimate result. For a tariff of one nation equalizes that of another. The common factor cancels out, and the battle must be fought, in the last analysis, just as nature intends that it shall be—

on even terms.

To succeed in this field, therefore, there must be a continuing advantage in access to cheap raw material, or in efficiency, or in opportunities for profit to capital invested. If we measure, again, our progress by that of Germany, which has to obtain so large a portion of its raw material elsewhere, we shall not feel so much like self-congratulation. The great progress of our iron production has been noted. Yet Dr. Helfferich finds that the percentage of increase between 1887 and 1911 in the United States was 268.5, and in Germany 287. Moreover, it was 486.3 in Russia and that country of undeveloped resources, so similar in this respect to our own a generation or more ago must be reckoned within the industrial future. In steel production the contrast is still more marked; our percentage of increase from 1886 to 1910 being 910.3 as against 1,335 for Germany. It is clear that, if we are to hold our own, we must meet this competition in production, which is translated instantly into competition in foreign trade.

Germany has waxed fat to a considerable extent on spoils taken from the foreign trade of Great Britain. And perhaps the most instructive thing in the world would be to consider the means by which so many English markets have been captured by Germany, and why so many industries have changed their seat from Sheffield and Birmingham to the busy manufacturing towns of the German Empire. The main reason lies in the inability of the English manufacturer to change his working conditions in conformity to general changes that have taken place, beyond his power to arrest or alter, in the markets wherein he must give a free field and can hope for no favor. It must be borne in mind always that the future and, even more and more surely, the present struggle for foreign commerce must be conducted under rules laid down by civilization itself. There can no longer be a scarcity of any commodity in any place on the surface of the globe if a surplus of that commodity is to be found anywhere else on the surface of the globe. Through the growth of all forms of publicity, of commercial reports, of communication by cable and wireless, the situation is at once made known. Railroads and steamships are ready to carry the desired article from any spot to any other spot, however distant. And, so long as the transaction shows a profit, capital and men will be ready to undertake it. No real monopoly of trade can ever exist again, except within the narrowest areas or for an inconsiderable space of time.

It follows, necessarily, that all competitors must enter the lists under substantially equal conditions. Now England had controlled so long a share of the world's commerce in manufactures for so long that she apparently forgot this. She encouraged or permitted the establishment of conditions that left her hands tied as against a free competitor. And the reason for dwelling at some length here on this is that the United States is following her example. The power of the English trade unions became practically arbitrary in fixing wages, hours and general working conditions. Germany found that, with a more advantageous wage scale, she could go into the world's markets and compete at prices which England could not meet. Hence the enormous growth of German exports of the manufactured articles. Hence a competition which the United States itself cannot meet in many lines and which it could not meet at all did not immense and accessible natural resources and, in certain lines of manufacture, the use of highly skilled labor and highly complicated machines which cheaper labor is not competent to handle give us a temporary advantage. But that advantage, like every other exceptional local condition in world trade, tends to be equalized and disappear. For, in the vast pool of the world's activity, where the material, the worker, the machine, the method fly from one end of the earth to the other at call, only a purblind nation can dream of basing its future on anything less commanding than equality or superiority in the elements of production; including, of course, the wages of labor and the remuneration of capital.

This, Great Britain has not yet fully realized. The United States does not appear to understand it at all. Widespread and long-continued industrial distress in England come from attempting to hold markets against competitors while maintaining a wage scale that does not permit her to meet their prices, and does not offer to capital an inducement to go into new fields of development or even to remain where it has hitherto been occupied. She

meets this not by removing the shackles from her industries, but by fastening other shackles on her capitalists; fetters that must be added later to those that already gall the limbs of labor. She has entered upon the most elaborate experiment ever seen to compensate the worker for the work he has lost through insisting upon impossible economic terms, now that work is no longer to be had, by a vast eleemosynary system which makes the State pay for his unemployment, his sickness, his misfortune and his death. He is to be sustained in his position of inability to compete with other workers; and he is to be protected against the penalty of his economic defiance at the expense of the whole community. The budget just presented calls for an annual expenditure of over a billion dollars. Twenty years ago it was half that sum. Taxes are now accomplishing actual confiscation.

Reduced to its simplest terms, this project is not "humanitarian," but unspeakably cruel; through that high-sounding word and its familiar fellow, 'Social justice," are common cloaks for legislative cowardice or incapacity that does not dare apply the real remedy to the obvious disease. It merely postpones the inevitable, and intensifies the catastrophe which can no more be averted than hunger can satisfy itself on air. Great Britain is now maintaining many of her industries in an artificial condition by appropriating for the support of one class of her people the property of another class. Let it be understood that this discussion has nothing to do with the moral of the process, but only with its economic consequences. The British Empire is now sustaining itself by sequestering under one guise or another, the stored accumulations of past generations. The end of that policy comes when this accumulated capital is exhausted or has removed itself beyond the reach of legal capture. When that day arrives, Great Britain will be face to face with her real problem. Its magnitude and its difficulty will be almost unique in history.

It would seem that, with such events passing before our eyes, and the veil of the future almost lifted for our benefit, we should not be beyond the reach of helpful suggestion or find rational conduct difficult. But the burdens placed by unwise restrictive legislation and unnecessary taxation upon business in the United States are producing their natural effects here also. Industry slackens less because capital is dissatisfied with the present than because it is uncertain of the future. Just such mistakes as Great Britain has made and is making may confront the American workingman with a lost job, an empty cupboard and no younger and more promising land to which he can emigrate as is needy fellows have done for centuries when caught in the vise of economic errors or commercial revolutions. The future of our industry must be worked out here and by ourselves. Losing gradually the advantages that our position and resources have given us up to a recent date, nothing but a deeper wisdom and a keener sense of justice toward all the factors that must unite to create national prosperity can keep us at the front in the race with other nations, or even insure us against disappointment, disorder and economic distress at home.

Markets, prices, wages, remuneration of capital—every element that enters into the production, distribution and exchange of comodities, everything that forms the material of commerce or makes commerce possible, every price-making factor—are undergoing a world-wide leveling process. Advantages, natural or acquired, are being banished from the world as certainly as contagious diseases. Trade hereafter will stand like a colossus, with one foot on either hemisphere; and on the banner that it holds will be written, with a new force and meaning, the old motto of democracy: "Equality of opportunity." Men have for a long time demanded no less. The problem of the world's future is to make them content to take that and demand no more.

World trade cannot be a one-sided affair. Capital must be considered as well as labor, because they are "useless each without the other." When a plant ceases to be remunerative, it must be shut down. No miracle will keep it running indefinitely at a loss. But then the employe is out of work. He sees not far ahead, the prospect of suffering for himself and his family, or removal to some more favored land. Even if he is able to persuade some crackbrained enthusiast or some coldly selfish politician to vote him a support at the public expense, under compulsion of law, neither can that last forever, sooner or lat-

er all outside resources are exhausted. Capital must insist upon its fair remuneration and labor must insist upon a fair wage and no more, in the wide lists of the open world. Back of both, as behind most of the great movements and achievements of the race, stands the stern and compelling figure of death, their final umpire.

Great and true analogies often lie before our eyes for ages until we learn at last the interpretation. This material world is a creature of the law of reduction to a common level. Every inch of fertile field, every valley that delights the eye, had its birth in sterile mountain fastnesses. Everywhere, incessantly, moisture and heat and frost and wind and running water are at work, leveling the earth. Infinitesimal molecules of vapor do what no human enginery could accomplish. The crag splits, the boulder turns to shale, the rubble carried along by the torrent becomes river sand, the glacier grinds stubborn rock to powder. Nature is the greatest of all democrats, and she never knows defeat.

The moral world is a separate sphere, where the humble may climb and the lowly be exalted. But in material things, the law of the common level prevails. The day is coming, some hints of its dawning may already be seen, when trade everywhere will be carried on upon a more equal footing; when commerce will be a battle between peers. It is the part of men both brave and wise to disband the mercenaries, to come out from fortifications that the years have undermined, and to work in the open for advantages that will ultimately be distributed, like alluvium on the river delta, evenly over the whole surface of mankind.

The nations first united to suppress piracy, then joined against the slave trade, and now find thread adding itself to thread in the busy web which is to cover the whole, Postal Unions, Red Cross societies, international agencies of many kinds are preparing the way for world-wide arbitration. The capture and the holding of foreign markets will depend, in the long run, on the same things that make domestic success or failure. In the not distant future wage scales, profit percentages, all the conditions of production will more nearly standardize themselves automatically all over the world. Then nature's master hand will apportion different forms or divisions of industry acording to the plan of her own handiwork. Then individual and national qualities will maintain a world-wide competition, and the fittest will prevail. In the continual advancement of a community become as universal as the atmosphere that wraps the common earth on which it lives and labors, the race will, indeed, be to the swift and the battle to the strong.

RAILROAD EARNINGS.

The following table is compiled from the monthly reports of the Interstate Commerce Commission, and cover all railroads in the United States having gross income of $1,000,000 or over per year. The statements are per mile of road operated, and show gross revenue from operations, operating expenses and net operating revenue.

	1911-12			1912-13			1913-14		
	Revenue.	Expenses	Net.	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.
July ...	$1,025	$698	$327	$1.113	$750	$363	$1,161	$814	$348
Aug. ...	1,119	726	393	1,211	776	435	1,219	831	388
Sept. ...	1,137	725	411	1,206	775	430	1,237	832	405
Oct. ...	1,175	749	425	1,311	827	484	1,294	870	424
Nov. ...	1,093	734	360	1,213	806	407	1,163	824	339
Dec. ..	1,046	720	326	1,159	799	360	1,100	800	299
Jan. ...	992	728	203	1,087	803	284	1,005	776	229
Feb. ..	964	71	254	1,011	752	259	900	729	171
Mar. ..	1,051	746	305	1,081	799	282	1,076	782	294
April ..	974	717	257	1,068	806	263	1,021*	763*	258*
May ...	1,030	735	295	1,154	834	321			
June ...	1,075	737	339	1,140	803	337			
Totals.	$12.621	$8,725	$3,895	$13,754	$9,530	$4,225			

* Report of the Bureau of Railway Economics; Interstate Commerce Commission returns not yet available.

JUDGE GARY'S REMARKS ON THE SITUATION.

Speech Delivered by Elbert H. Gary, Chairman, to the Presidents of the Subsidiary Companies of the U. S. Steel Corporation on June 25, 1914.

Following the usual custom before my annual departure for Europe, I will make some general observations which are applicable to our companies and include topics of interest, whether my conclusions may be entirely justified or not.

It seems to me it would be foolish to claim that business conditions generally in this country at the present time are satisfactory. I think you will agree with me that in our lines, taken as a whole, business conditions during the last few months have been worse than they have been before at any time during the last decade. It is true the volume of orders during the last two weeks has increased somewhat, but the prices obtained are so low that as a total result of our business activities there is not up to the present time very much improvement. I fear the earnings of all the companies for the present quarter will be rather small by comparison with other periods, but the exact figures I am not acquainted with, for as you know they are not definitely made up until the day the results are given out to the public.

There are various causes for business depression, some of which will occur to you that I do not mention. It is fair and proper for anyone to honestly and accurately state causes for any known effect so far as he is able.

Loss of Property Through War, Etc.

In the first place there has been throughout the world during the last two years great destruction and waste of property. Wars, which were severe, and preparations for possible wars by way of buying and burning powder and other instruments of warfare, have materially depleted the financial resources of the world; and the effects have been felt in all countries and localities, whether they were directly involved or not. It requires a good deal of time to recuperate from losses created by disturbances of this kind. Then the floods and fires and accidents at sea and on land have resulted in the destruction of and injury to property.

I think in ordinary discussions we are apt to overlook these general causes which are so very important in the consideration of reasons for depression in our business; and quite likely we are also inclined to overlook the fact that it is only a question of time when we shall recover from these effects.

Unrest and Agitation.

Again, the agitation throughout the universe prompted from good motives, or sometimes from motives of cupidity, and at other times by reason of individual effort to succeed politically, have had a decided and adverse influence. There has been more or less antagonism between different elements in society, which has had a decided influence upon the minds of the people who were financially responsible for and active in carrying on the business affairs of the world. It is a long story to attempt to describe the causes in detail for these agitations or their effect. But there seems to have been more unrest, more disturbance, more open antagonism between different classes of people than ever before. And there is little doubt that business conditions everywhere have been influenced by this agitation. This country is no exception.

Bad Effects of Discriminating Legislation.

In this country the depression has been worse than it has been in many other countries, notwithstanding we may not have been closely connected with some of the causes I have referred to. Then we have been adversely affected by legislation and threatened legislation, particularly such as seems to be discriminatory. As I view it, one of the worst things that could happen to any country is to enact laws which are calculated to protect or to punish one class of citizens to the detriment of other classes. Both are injured, and both become distrustful and dissatisfied.

The Effect of the Tariff.

And the tariff law lately passed has adversely affected the business conditions of this country, in my judgment. This is not or ought not to be a political question; it is an economic question. To my mind it is unfair to any country to place it upon a free-trade basis if it has to come into competition with another country which is on

a protected basis, assuming of course that the interests of the countries respectively are the same with reference to the application of laws of this kind. I have never believed in protective laws which would permit the citizens of any country to collect unreasonable prices for their commodities. I believe protection should cease at the point where mere protection is afforded and where opportunity to oppress commences. But the present laws, so far as they affect our business at least, are not in my judgment adequate to protect. As to the effect upon other lines of business, it is not necessary to discuss at this time, although of course we are more or less influenced by general conditions. While the imports of iron and steel to this country may not be large as compared with the total of our production, yet if they are not large it will be because the prices are so low that the foreign manufacturers cannot afford even to dump their surplus into this country. And that brings the people of this country, including not only those who furnish capital for doing business, but also the working men of the country, into active competition with labor of foreign countries, paid very meagerly as compared with the wages paid in this country. We have reason to expect that under the present tariff law the earnings of manufacturers will not be as large as they ought to be in order to furnish to the investor a fair return on the capital actually invested in his business or the payment to his employees of the wages they need and should be entitled to receive. If this be true it is only a question of time when the majority of the people will realize that unreasonably low tariff rates are not of general benefit; and in that case there will be a change in the policy of the country.

Business Halting but Expectant.

The other side of the general situation I have before referred to, and you are familiar with it. Any man of experience and thought must realize that it is only a question of time when there will be a decided improvement; when this country will make greater and more satisfactory progress than ever before. Business is halting but expectant. We have always the production from the ground which is steadily increasing in quantity and value; and we have an energetic, persistent, courageous and fair-minded people to deal with. That there are bound to be exceptions to the rule goes without saying. But the minds of men sooner or later reach the common basis that all share in prosperity or adversity. No class can long prosper or even survive to the destruction or failure of another class.

Early Autumn Improvement Expected.

I believe in the early autumn we shall see an improvement in our business conditions. We are already witnessing an increase in tonnage; and it will be further increased, I trust. The mere fact that tonnages are increasing from day to day will naturally influence some improvement in prices. Therefore I think our earnings should be more satisfactory in the latter part of the year. Indeed, as I have remarked before, generally when we have a very good six months during the early part of the year there is likely to be poorer business in the latter half of the year, and **vice versa.** Now business has been bad enough during the first half of 1914, and we hope at least that it will be very much better during the latter half of the year. And I am rather expecting it. We must not be discouraged on account of the adverse conditions; we have every reason to be hopeful. And the realization of our hopes is only a question of time. We must be more diligent and persistent than ever. Let us do everything in our power to assist in restoring confidence and prosperity.

Attitude of Corporation and Its Officers.

I consider it important to have in mind and to discuss what should be our attitude toward each other and towards all others. We frequently criticise one another and think we have reason. Quite likely you may think that the President of the Corporation or the Chairman or even the Finance Committee or Board of Directors is not always considerate of your interests. Please remember that if there is justification for your conclusion at any one time it is not because of any intention on the part of those whose decisions you may criticise. And in dealing with one another each should remember that the other is honest in his intentions and feels confident his opinion is justified. One or the other may be mistaken. Both are sincere, and both striving in the same direction. And the same is true of all those who are connected with the Steel Corporation. None of them fails to appreciate your merits or your work. None of them ever has the slightest disposition to accuse you of selfishness or of

an intention to insist upon the claims of your own company to the prejudice of the interests of other companies, or the Corporation. No one connected with the Steel Corporation believes that you do not lie awake nights, so to speak, as well as they, studying the interests of your particular company, or that you ever fail to do everything you can to advance the interests in your charge, or that you are indifferent to the interests of others. They know you are toiling day and night because you believe it is your duty, as it is your pride, to assist in protecting and promoting the interests of the Steel Corporation. We may say or we may do things at times that lead you to the conclusion that we are inconsiderate; but if we are wrong in what we do or what we say it is because we are mistaken. Remember, we intend to be honest and sincere, that we have no personal axes to grind, that we are not trying to advance personal interests, that we are considering the rights of the Steel Corporation and others who may be connected with or affected by it or its decisions. And so you must continue to be as generous in your consideration of these questions as you have been and as we have tried to be. What I have said in this respect, gentlemen, may be applied to many others outside of our corporations whom we are quite inclined to criticise. We criticise the law-maker; we criticise the officials of the state or of the country; and we sometimes go so far as to complain of the courts. As a rule we ought not to find fault with the individual law-maker or the individual public official, and least of all the judges of the courts; for we must admit that when they make their decisions, as law-makers in the passage of a law, or in the administration and application of the law, or in the decision of a question which is brought up for hearing, these men intend to be honest; they are sincere. That they or any of them may be wrong in any individual case is true, but in such cases we should oppose the act done, the decision rendered, the law passed, rather than to attack the individual and thus bring reproach generally upon the people of the country.

I do not intend to minimize or to neutralize the effect of what I may have said about the demagogue who, on the stump or in other places, may indulge in language which is calculated to promote his individual interest at the particular time in securing or retaining office. But it is wiser to criticise his action. His motives may be good. I believe this is the fairer way, and that it is for our own interest to take this position.

These questions are very important at the present time, and you men have great influence day by day concerning these questions. Our position should be high-minded and entitle us to respect and confidence.

Individuals High Up in Business World Must Cease to Give Cause for Complaint.

There is another thing very important to be considered. It applies to all men of wealth or influence or who occupy positions similar to yours; but it is sufficient now for us to consider the question as applicable to ourselves individually. The undue, the unreasonable, the unjustifiable agitation throughout the world comes partly from a misunderstanding of the facts or from the belief that there is good cause for attacking those who occupy positions of power and influence. No doubt all of us make mistakes, and do things we ought not to do; but there is no excuse, or if there is excuse there will be no longer toleration of the individuals occupying positions such as you occupy, if you intentionally wrong any other interests which may be affected by your action or your decisions. If the people of power or influence will consistently avoid giving any just ground for complaint on the part of the great majority of citizens, then in that way and only in that way will the former secure and retain confidence, and so be able to convince the larger number that it is for their interests from every standpoint to co-operate, and thus labor for the success and protection of all.

To my mind this is one of the burning questions of today. I am talking to the business family. We are all on the same footing. I would not be willing to admit, if I were discussing the question with many of the agitators of the present day, that the causes of present unrest and dissatisfaction are our fault. But that has no bearing when we are considering it for ourselves and between ourselves in order to determine what our conduct and attitude should be.

Responsibility to Stockholders.

We represent, because we are placed and kept in position by them, the stockholders

of our Corporation, and therefore our first duty is to them. Unless we can serve them in accordance with their interests and so as to secure their approval of what we do, we have no right to occupy or remain in our positions. We have no right to consider personal interests; we have no authority for trying to advance our own claims unreasonably to the prejudice of the stockholders of our Corporation. Sometimes there may be temptation offered to secure personal profit or advantage, even at the risk of trespassing upon the rights of stockholders. I am sure there is no one in this room who would yield to a temptation of that kind. But we must be on our guard all the time against the possibility of anyone in any capacity connected with any of the companies departing from the limits of propriety. We must be alert and courageous; we must stand solid on all occasions against being a party to or consenting to any imposition of the kind referred to. Everyone will respect us more, but whether they do or not is immaterial. We must do our duty to the stockholders of this Corporation. Such is our pleasure. They trust us; they hear about our organization and they believe in it; they send their proxies year by year to us because they think we are dependable; and we must never fail them.

If it be said that action we have taken at different times has not been favorable to the stockholders of the Corporation because it has reduced the profits of the Corporation, we may disagree. I realize that when we increased the wages of our men not long since, at the rate of twelve million dollars a year, we took just that amount out of the earnings which would otherwise have been available to the stockholders; and when we paid out last year seven million dollars for the welfare of our employees we prevented an addition of that amount to the general surplus of the Corporation. In many other ways, by the generous treatment of competitors, of customers, and of others who might be affected by our decisions, we have reduced for the time being the sum of money which the stockholders might otherwise have received and been entitled to. But the decisions which we have made have been rendered because we believed they were right and just. And if those reasons are not sufficient in the opinions of any stockholders, then certainly we may appeal to their judgment from the standpoint of their pecuniary interests, because everything we have done has in the long run contributed to their profit. Their Corporation is more valuable, it stands better in the eyes of the community, it secures better service from its employees, it secures fairer treatment from its competitors and from the general public, it has succeeded better year by year; and therefore, even if we were considering profits only, we have been acting wisely; and certainly we have been conscientious.

Regarding Wages.

You have in your minds at the present time, no doubt, because of your environments and a prevailing sentiment, the question of wages of your employees. You know that some are making reductions. Others in large numbers are contemplating general reductions and you fear you may be obliged, before we pass through and out of the general and great depression now existing, to reduce the wages of your men.

I have this to say: when we feel we are required to take any action we dislike, whether it is in competition with other manufacturers or whether it is in reducing the wages of our men, then it is soon enough for us to dispose of these questions. When we feel we are forced to do a thing in self-defense then we have no right to shut our eyes to the facts. But until we believe it is imperative to reduce the wages of our men, I hope we will not do it.

Tribute to Workmen.

We must admit our men have been very faithful to us. No large body of laboring men ever before treated their employers as fairly and decently as the two hundred and forty thousand employees of our companies have treated us. Considering their education and their experience, their belief, formed largely in other countries, concerning the attitude of the ordinary employer of labor, and their lack of opportunity for investigating and understanding the motives of their employers, our men have been very decent in their conduct toward us. There may have been exceptions; you may always find exceptions to a rule; but I speak of our men as a whole. They know generally what you think of them, they know what your concern for them has been and is, they believe you appreciate their dispositions, that you are day by day considering their welfare and making a study of questions in

regard to the improvement of conditions for life and health and safety. They are not at all blind to the fact that you have treated them on the whole better than employers ever before treated their workmen. And it has been a great satisfaction to you and to all of us to know that, actuated by high motives, you have done the right thing, and also that you have done a good thing for the stockholders whom you represent, because you have secured loyalty and efficient service. I do not say you may not be compelled to reduce wages. You are sorely tried by the results of labor in other countries receiving very much less pay, particularly on account of the present laws of the country which, in passing, I should say were passed because those who voted for them believed they were right and would benefit the largest number. We believe they were mistaken in the passage of those laws, and time will probably more fully demonstrate we are right; but whether you are compelled to reduce your wages or not, I trust you will give due credit to the claims and to the merits of your men in connection with the possibility of your resources before you conclude to make reductions. I am not seeking to influence you at all; I have been trying to draw a picture of your minds as I see them, as indicated by what you have said and what you have done, and to give you to understand that so far as the officials here are concerned at least, and as I believe, the members of our Board of Directors and our Finance Committee, we share with you the desire to continue the payment of high wages so long as we can.

Economy in Expenditures.

Speaking particularly of your individual and daily work, may I refer again to the question of economy in expenditures. Personally I do not think extravagant expenditures on the part of an individual who keeps within the limits of his resources is necessarily a bad thing for the country, provided property or wealth is not destroyed or injured. I think if a wealthy man distributes his money, even by extravagant expenditures, amongst the people of his own country, there is no harm done, and that others should be slow to criticise. I am not talking now from any ethical standpoint or the disposition one may have to ridicule ostentation. Extravagant expenditures by a nation which purchases its supplies of other nations is another thing. We should bring from other nations to this country all the wealth which we can properly and honestly secure in fair, open dealing. Any law which reduces the amount of money received from other countries or increases the amount left in other countries is bad. And I am of the opinion that the people of this country will not only more fully realize and appreciate this position, but they will by study and thought determine for themselves what ought to be done in order to protect their interests so far as it can be legitimately done, and in order to make this country, as it ought to be, prosperous and successful without these recurring depressions, so that we may continuously secure and reap the benefit of the great advantages which we possess, and which is certain some time in the future, I hope the near future, to place your business on a fair and reasonable basis. If time shall prove we are wrong in our present opinion of the laws referred to as to their injury to business, we should be the first to admit it. Meanwhile we should do everything practicable to assist in making the laws in their results equal to the benefits claimed by those who are responsible for their adoption. Our influence should be exerted in favor of existing laws, and we should cordially support those who are called upon to administer them.

Strictest Economy the Order of the Hour.

With reference to the expenditures which are being made for our companies, we are obliged to use the strictest economy all the time. We occupy positions of trust; we are expending daily money which is not our own. Our stockholders have a right to hold us to a strict account. The fact that the Corporation or any of the companies may be rich or may be prosperous or may have money in the treasury, furnishes no justification for needless or extravagant expenditures. We are more inclined perhaps to consider these questions in times like these, when there is danger of the continuance of a depression which may materially reduce our cash resources; but we should all the time, whether we are prosperous or not, realize that in the distribution of the funds in our charge we have no right to pay out any money that is not certainly required.

Now, I presume that some of you might be surprised to know how your individual expense accounts compare with those of other officials. I do not say this from the

books. I am quite sure many of you would be surprised if you should examine the expense accounts of the officials of the United States Steel Corporation. I know they are small.

Economy Also in Extensions.

Some of you may be disappointed during the next few months by not receiving recommendations for extensions. Probably you will secure favorable consideration of all recommendations which you may make for expenditures calculated to add to the safety and welfare of your employees, and for all of those which the Finance Committee determines are necessary to keep your properties in condition or to take care of the business which is on your books or which may be placed on your books if a proposed expenditure is made. But, for requests to make extensions like the Canadian plant, which we all would like to see immediately built if we could afford it, or additions to your plants in places merely because you believe the return would be large, I think you may conclude that the President will be slow to present such claims to the Finance Committee during the summer; and that if he did, the Finance Committee would hesitate to endorse them. I am influenced to say this not because I might disagree with any of you concerning your recommendations, but because I believe it is absolutely essential to the continuous success and prosperity of the Corporation and its interests that we keep ourselves as strong in cash resources as may seem practicable and justified by the particular circumstances which may be presented.

I hope, gentlemen, you will have a good summer. I shall have you and your work in mind while I am away. I shall not for a moment forget your loyalty to the interests in your charge or your friendship for me personally. I trust you may keep well and suffer no adversity or discomfort. And I shall be more than glad to return to active communication with you.

TOPICAL TALKS ON IRON.

XVI. The Location of Iron and Steel Works.

Very curious changes have occurred in the principles observed in selecting locations for iron and steel plants. In different periods of the industry's development the rules have varied widely.

In the early days of iron making there was naturally no choice. The difficulties of transportation were such that the manufacture had to be conducted where the ore was found. The fuel, being charcoal, was obtainable nearly everywhere. Scattered almost throughout the Appalachian mountains are deposits of iron ore, and the manufacture naturally grew where the demand arose. In the old days a large belt of country through Pennsylvania was dotted with forges, making wrought iron direct from native ore. Here and there was a blast furnace, making pig iron for iron foundries.

When rail transportation developed, iron making still clung quite closely to the ore deposits, but with the introduction of coal as fuel for various purposes and the extensive use of the puddling furnace, a new influence was developed.

In these later times one is disposed to conclude that the reason Pittsburgh became the greatest iron and steel manufacturing center in the world was because of its proximity to the Connellsville coking coal basin, and while that may be true of the district's later development, it was not true as to the inception of iron making in Pittsburgh. Coke, of course, is used only as a blast furnace fuel, and the fact is that Pittsburgh was a great wrought iron making and finishing town long before it had any blast furnaces. Disregarding an unsuccessful attempt, in 1792, at operating a blast furnace at Pittsburgh, the first Pittsburgh district blast furnace was built as late as 1859, when there were probably dozens of iron mills. We do not have at hand records of the iron mills existing in Pittsburgh at various early dates, but there is one piece of information which is illuminating. In Swank's first iron and steel works directory, published in 874, there were listed eight iron mills as then operating, which had been built at various dates from 1824 to 1842. How many more there were in that early period, long before the first blast furnace, which did not survive in

order to be listed in 1874, one can only surmise.

These iron mills used pig iron, in puddling furnaces, but the pig iron was brought from a distance. The blast furnace was not located at the iron mill because the difficulties in transporting ore and fuel were too great. The iron mills were not located at the blast furnaces for two reasons, because Pittsburgh was a large consuming market and had excellent water facilities for distribution, and because Pittsburgh had the fuel. In those days a great deal of coal was required to carry a ton of pig iron through puddling and rolling or forging to a finished product.

With the development of the Lake Superior ore region, which began in the fifties of the last century, the blast furnace gravitated strongly towards the fuel, which was then raw coal and coke. It was unthinkable that it should go to the ore. The advantages of avoiding a rail haul, after the ore had been brought down the lakes, was such that almost from the beginning the shores of the Great Lakes found favor, and collectively about as much favor as Pittsburgh, even though the fuel had to be moved a considerable distance.

Apart from these developments, of course were the rise of self contained iron industries in Virginia and Alabama, later in Tennessee, because in those districts both ore of satisfactory quality and coking coal were found in proximity.

Thus iron making was first at the ore, then divided between pig iron making at the ore and puddling and finishing at the fuel, then united again either at the fuel, as at Pittsburgh, or between the fuel and the ore, as at Chicago and various points on Lake Erie.

In recent years the steel industry has been tending to enter a new stage, in which both the fuel and the ore are brought great distances. This new arrangement is fostered by improvements in manufacturing methods. The amount of coal required to produce a ton of finished steel has been undergoing constant reductions. Boiler furnaces have been improved so that less and less coal has been required to product a lb. of steam, while steam engines have been improved so as to use less and less steam in producing power. Heating furnaces have been improved, reducing the amount of coal needed to heat steel, and rolling mills have been improved whereby a greater amount of work can be done on a piece of steel with one heating. Two other great improvements have been developed, the employment of waste blast furnace gas in producing electric power through the medium of gas engines and electric generators, and the by-product coke oven, whereby the coal does not need to be as carefully selected as in beehive practice, and a large amount of gas is saved, to be used in generating power. Through these various improvements the quantity of coal used to convert iron ore into the finished wrought product is only a small fraction of what it was half a century ago.

The steel mill may now venture far from the fuel and may also be located far from the ore supply, provided there are convenient means of transport. Through the development of wonderful ore conveying machinery ore can be loaded and unloaded at very small expense per ton and both by rail and water, particularly the latter in the case of the Great Lakes and the ocean, the cost of carriage is relatively light.

CAR BUYING.

Freight cars ordered:

First half 1912	85,000	
Second half 1912	150,000	
Year 1912		235,000
First half 1913	114,000	
Second half 1913	33,000	
Year 1913		147,000
January, 1914	10,000	
February	13,000	
March	7,000	
April	10,000	
May	9,000	
June	15,000	
Six months, 1914		64,000
Equivalent rate per year		128,000

LOWER PIG IRON FREIGHTS.

The Interstate Commerce Commission has handed down a decision reducing freight rates on pig iron from Alabama and Tennessee to Northern and Eastern points.

The decision is a victory for the Birmingham pig iron producers and those of Alabama and Tennessee generally, and will enable these Southern producers more effectively to compete with pig iron producers in Ohio, Illinois, Wisconsin, Pennsylvania and Minnesota.

The commission has cut the pig iron rate approximately 35 cents a ton on all rail and something like 45 cents on rail and water hauls.

COMPARISON OF METAL PRICES.

	Range for 1912.		Range for 1913.		Range for 1914.		Closing
Pig Iron.	High.	Low.	High.	Low.	High.	Low.	June 30.
Bessemer, valley	17.25	14.00	17.25	14.25	14.25	14.00	14.00
Basic, valley	16.50	12.25	16.50	12.50	13.25	12.50	13.00
No. 2 foundry, valley	18.00	13.00	17.50	13.00	13.25	13.00	13.00
No. 2X foundry, Philadelphia	18.50	14.75	18.50	14.50	15.00	14.50	14.50
No. 2 foundry, Cleveland	17.75	13.25	17.75	13.50	14.25	13.25	14.25
No. 2X foundry, Buffalo	17.25	13.50	18.00	13.00	13.75	12.50	13.00
No. 2 foundry, Chicago	18 00	14.50	18.00	14.00	14.75	14.00	14.25
No. 2 Southern, Birmingham	14.00	9.75	14.00	10.50	10.75	10.25	10.25
Scrap Iron and Steel.							
Melting steel, Pittsburgh	16.25	12.50	15.00	10.75	12.00	11.00	11.75
Heavy melting steel, Chicago	14.00	10.75	13.25	9.00	11.00	9.00	9.75
No. 1 R.R. wrought, Pittsburgh	16.25	13.00	15.75	11.50	12.75	11.50	11.75
No. 1 cast, Pittsburgh	15.25	12.35	15.00	11.50	12.25	11 50	12.25
Heavy steel scrap, Philadelphia	17.00	11.75	14.75	9.75	11.25	9.75	10.60
Iron and Steel Products.							
Bessemer rails, mill	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Iron bars, Pittsburgh	1.65	1.25	1.65	1.35	1.35	1.25	1.25
Iron bars, Philadelphia	1.67½	1.22	1.67½	1.22½	1.27½	1.22½	1.22½
Steel bars, Pittsburgh	1.40	1.10	1.40	1.20	1.20	1.10	1.10
Tank plates, Pittsburgh	1.50	1.10	1.50	1.20	1.20	1.10	1.10
Structural shapes, Pittsburgh	1.50	1.10	1.50	1.20	1.25	1.10	1.10
Grooved steel skelp, Pittsburgh	1.45	1.15	1.45	1.15	1.20	1.15	1.15
Black sheets, Pittsburgh	2.25	1.80	2.35	1.80	1.95	1.80	1.80
Galvanized sheets, Pittsburgh	3.40	2.80	3.50	2.80	2.95	2.75	2.75
Tin plate, Pittsburgh	3.60	3.30	3.60	3.40	3.40	3.30	3.30
Cut nails, Pittsburgh	1.70	1.50	1.70	1.60	1.60	1.55	1.55
Wire nails, Pittsburgh	1.75	1.55	1.80	1.50	1.60	1.50	1.50
Steel pipe, Pittsburgh	79%	81%	79%	80%	79½%	80%	80%
Connellsville Coke at ovens.							
Prompt furnace	4.25	1.80	4.25	1.75	2.00	1.75	1.75
Prompt foundry	4.50	1.90	4.50	2.40	2.50	2.40	2.40
Metals—New York.							
Straits tin	51.05	42.05	50.70	36.75	41.12½	30.00	30.50
Lake copper	17.80	14.15	17.00	14.50	15.50	13.75	13.87½
Electrolytic copper	17.75	13.95	16.87½	14.12½	14.87½	13.40	13.45
Casting copper	17.65	13.75	16.62½	13.87½	14.65	13.25	13.30
Sheet copper	23.90	19.00	22.00	19.75	20.25	19.00	19.00
Lead (Trust price)	5.10	4.00	4.75	4.00	4.15	3.80	3.90
Spelter	7.65	6.45	5.65	5.10	5.50	5.00	5.05
Cooksons antimony	10.50	7.12	9.00	7.25	7.37½	7.10	7.15
Aluminum 98-99%	28.00	18.50	27.12½	18.50	19.00	17.50	17.62½
[illegible]	64¼	54¼	62¼	56	59¼	55⅞	56¼
St. Louis.							
[illegible]	5.02½	3.90	4.72½	3.85	4.10	3.65	3.78¾
[illegible]	7.50	6.25	5.85	4.95	5.35	4.82½	4.83¾
Sheet zinc (f.o.b. smelter)	9.00	8.00	9.00	7.00	7.50	7.00	7.00
London.	£	£	£	£	£	£	£
[illegible]	223	183¾	232	166¼	188	135¼	137⅝
[illegible]	80⅛	60⅛	77	61⅝	66¾	50¼	60⅛
[illegible]	23¾	15⅞	21	15	20	18	19¼
[illegible]	27⅝	25	26	20¼	21⅝	21⅝	21½
[illegible]	27	27	25⅝	25⅜	27	25½	26

COMPARISON OF SECURITY PRICES.

Railroads.	Range for 1912 High.	Range for 1912 Low.	Range for 1913 High.	Range for 1913 Low.	Range for 1914 High.	Range for 1914 Low.	Closing, July ...
Atchison Top. & Santa Fe...	111¾	103¼	106⅝	90⅜	100⅝	91⅛	99
Atch. Top. & Santa Fe, pfd.	104¼	101⅜	102⅛	99	101⅛	97⅛	99
Baltimore & Ohio	111⅜	101¼	100⅛	90⅛	98⅛	87⅛	90⅜
Canadian Pacific	283	226½	260⅞	204	220⅛	186⅜	194
Chesapeake & Ohio	85¼	68¼	80	57⅛	68	48¼	52
Chicago, Mil. & St. Paul	117⅝	99⅜	116¼	96¾	107⅛	94⅛	100
Erie R. R.	39⅛	30	42⅜	20⅛	32⅜	25¼	28⅛
Great Northern, pfd.	143⅞	126	132⅝	115½	134¾	119	124¼
Lehigh Valley	185⅜	155⅞	168⅛	141⅛	156¼	132½	136⅛
Louisville & Nashville	170	138	142⅛	126⅛	141⅞	131¼	136
Missouri, Kansas & Texas ...	31⅞	25⅛	29⅛	18⅛	24	14⅝	17⅛
Missouri Pacific	47¾	35	41⅜	21⅛	30	15¼	17⅛
New York Central	121⅞	106⅜	109⅜	90⅜	96⅜	86⅝	89⅛
N. Y., N. H. & Hartford ...	142½	126	129⅞	65⅛	78	63⅜	64⅛
Northern Pacific	131½	115⅜	122⅜	101¼	118⅛	106½	111¾
Pennsylvania R. R.	186⅞	119⅞	123⅜	106	115⅜	108¼	111
Reading	179¼	148⅞	151⅛	131⅛	152⅛	137⅜	164
Rock Island	30½	22⅜	24⅜	11	16⅜	1⅜	1⅛
Southern Pacific	115½	103½	110	83	99½	86¼	96⅞
Union Pacific	176¾	150⅛	164⅛	127⅛	164⅜	118⅜	155⅛
Wabash	9½	5¼	6⅛	2⅜	4	2⅜	2⅛
Industrials.							
Amalgamated Copper	92¾	69⅜	80⅜	46⅜	78⅛	66⅜	70
Am. Beet Sugar	77	46⅞	59⅜	19⅛	29⅜	19⅜	26⅜
American Can	47⅝	11⅛	46	21	35⅜	22⅝	27
American Can pfd.	126¼	90⅝	129½	80½	96	87¼	91⅝
Am. Car & Foundry	63⅝	49⅜	56⅜	36½	53½	44⅛	51¼
Am. Cotton Oil	60¼	45½	57⅜	33½	46½	37½	40½
Am. Locomotive	47½	31¾	44½	27	37¼	28	31
Am. Smelting & Refin'ng	91	66½	74¾	58½	71⅝	57	64
Brooklyn Rapid Transit	94½	76¾	92¾	83¾	94¼	87½	91⅝
Chino Copper	50⅜	25	47⅝	30⅜	44	37	41
Colo. Fuel & Iron Co.	43¾	23⅜	41½	24½	34½	24	26
Consolidated Gas	149½	135¾	142⅜	125⅛	139½	127¼	129
General Electric	188½	155	187	129¾	150⅝	140	149
Interborough Metropolitan ...	22	16¼	19⅜	12	16⅜	13¼	14
International Harvester	126⅞	105¼	111½	96	113½	100¾	107
International Steam Pump ...	34	12	18½	4½	9⅞	3	3
Lackawanna Steel	55½	28	49⅛	29⅞	40	32	32
National Lead	68¼	51¼	56⅝	41	52	45	47
Ray Consolidated Copper	24⅛	16	22	15	22½	17¾	21⅛
Republic Iron & Steel	35⅛	15¾	28⅜	17	27	20	22⅜
Republic Iron & Steel, pfd...	93⅜	64½	92¼	72	91¼	80	84
Sloss-Sheffield	59¾	39¼	45½	23	35	25	26
Texas Co.	130⅝	81	133½	89	149⅞	128	142½
U. S. Rubber	67⅞	45¼	69½	51	63	53¼	59¼
U. S. Steel Corporation	80¾	58¼	69⅛	49⅞	67¼	56	61¾
U. S. Steel Corporation, pfd.	117	107¼	110¾	102½	112¾	106½	109½
Utah Copper	67½	52½	60⅝	39⅝	58⅜	48⅞	58⅝
Va.-Carolina Chem.	57¼	40¾	43⅛	22	34⅞	25¾	28¾
Western Union Telegraph ...	86¼	72	75⅛	54⅛	66⅞	56⅛	58⅝

IRON AND STEEL.

THE SITUATION.

Pig iron production is at the rate of about 23,500,000 tons a year, the rate having decreased nearly a million tons during June. Steel mill operations are at between 60 and 65% of capacity, a gain of about 5% during the month.

Steel prices have become stationary, and the declines of early in June were almost negligible.

Pig iron in the south and in several northern markets has declined 25 cents a ton but at the lower figures the market shows some firmness.

Buying of pig iron in June was slightly larger than in May, and much larger than in April, and yet the market was disappointing, for with so many months of stagnation the advent of the second half of the year should have brought a fairly heavy volume of buying, even though the market generally was dull. That is what occurred a year ago, there being a good midyear buying movement even though the general trend of things, as seen in the retrospect at the end of the year, was downwards.

Buying of steel products began to increase late in May, in spots, and by early in June the buying of all seasonable products (thus excluding rails, wire products and tin plate) was at a rate about 50% greater than 30 days earlier. This buying was almost entirely for prompt shipment, though deliveries in a few cases would run to the end of July. June bookings on the whole showed a gain of about 35% over May, which had been the poorest month in the year. A few large interests found their June bookings better than those of any month since February.

Trends in the Trade.

The rate of pig iron production is practically stationary. July, with its hot weather, would normally bring a decrease in actual tonnage, without any change in the number of furnaces in blast, because hot weather, with its high humidity, cuts down the output of stacks individually, but in June there was a lessening of the blast at many steel works furnaces, the operators desiring to decrease production without actually blowing out the stacks. Their stocks of pig iron then began to decrease.

The rate of steel production increased slightly in June and at the moment the rate is practically stationary. There is hardly any of the closing of steel works which 30 days ago was predicted for midsummer. The fairly good bookings of prompt orders during June has removed the need for decreasing output in July. In a few instances July production of steel will probably exceed that of June.

Both pig iron and steel prices may be regarded as stationary. While the buying of pig iron in June seemed hardly sufficient to sustain the market, the buying was light partly because consumers were carrying over iron on the books of furnaces, and thus the furnaces have the business even though they have not made as many fresh sales as they ordinarily would at this time. In the case of steel, prices had already reached rock bottom, being practically as low as at the low point in November, 1911, even though the cost of production is now somewhat higher. The prompt buying has not advanced prices, but it has shown that the market was not exposed to the danger frequently encountered, of prices declining after a period of stagnation because there arose more incentive to cut. Furthermore, third quarter contracts are usually quoted at an advance over prompt, and thus prices may be regarded as stationary at the moment, with a distinct possibility that the present level may be found to be a turning point.

The Future.

The future of the steel market must always be regarded from two separate viewpoints. These viewpoints are entirely distinct, and in the long run of equal importance. No estimate can have much hope of proving correct if made from but one of these viewpoints. The one is the technical or internal position of the steel market, the other the position of trade in general.

As to the technical position of the steel market, prices are extremely low. If they are not at absolute bottom, they are separated from it by only a negligible margin, which, if it existed, would be bridged any time the occasion arose. The stocks of material are extremely low at all points; in the hands of mills, of jobbers, of retailers and of manufacturing consumers.

Owing to the general business uncertainty everyone has been reducing

IRON AND STEEL.

stocks. The consumption of late has been unusually light. For eight months the mill shipments have averaged only between 60 and 65% of capacity, and yet when general business was only moderately good the mills had a period of about a year and a half, immediately preceding the past eight months, in which they operated at an average of between 90 and 100% of capacity. As to the technical position of the market, then, everything is sound and conditions are favorable for a marked and prolonged improvement.

In conditions like the present the steel market simply stagnates. It may stagnate upward in tonnage, but it never stagnates upwards in price. It is conceivable that mills could experience an increase in the rate of operation from the present 60 or 65% up to 80 or 85% without prices being favorably affected. Any attempt to put up prices would shut off the buying.

An impetus must be furnished the market, and this impetus can come only from an improvement in general business. The actual rate of ultimate consumption must increase, and buyers must see such prospects in general business that they will buy more freely in tonnage, and more confidently as to the period of delivery. As to general business, there are two contending groups or forces. To hold back the tide there is great distrust, particularly in the east, of the National administration and the working out of its policies. The tariff, if it stood by itself, the great majority would try to make the best of, even though many do not like it. If there were no other fears, the currency legislation would be pronounced almost wholly good, and the most ardent hopes would be entertained of its success. There are other fears, however, and very serious ones, centering about the anti-trust legislation. Indeed, in many quarters the feeling would not be called a fear but an expectation, that the proposed anti-trust legislation will work great harm to business, and that instead of the subject being settled by the enactment of certain bills into law, the uncertainties will

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered).

	Bessemer, Valley	Basic, No.2 fdy, Valley	Basic Phila.	No. 2 Phila.	No. 2 X fdy, Buffalo.	No. 2 fdy Cleveland.	No. 2 fdy Chicago.	No. 2 fdy Birmingham.	Ferro-manganese.*	Furnace coke†
1913—										
Jan. ..	17.25	16.50	17.50	18.00	18.49	17.50	17.75	18.48	13.72	65.00	3.85
Feb. .	17.25	16.43	17.12	17.75	18.23	17.22	17.44	17.87	13.46	65.00	2.60
Mar. ..	17.20	16.14	16.60	17.50	17.81	16.79	16.75	17.75	13.04	64.00	2.47
April .	17.00	15.87	15.66	17.00	17.49	15.96	15.41	17.60	12.60	61.00	2.20
May ..	17.00	15.25	14.73	16.50	16.77	15.58	15.56	16.67	11.74	61.00	2.15
June ..	16.34	14.50	14.18	16.50	16.26	14.43	14.95	16.24	10.89	61.00	2.20
July ..	15.86	14.40	13.88	15.90	15.66	14.01	14.68	15.38	10.50	59.00	2.50
Aug. ..	15.63	14.09	13.94	15.25	15.56	14.20	14.50	15.44	10.85	56.70	2.50
Sept..	15.75	14.00	14.00	15.25	15.97	14.25	14.55	15.50	11.20	54.50	2.37
Oct. ..	15.67	13.97	13.83	15.25	15.94	14.25	14.73	15.50	11.48	50.28	2.10
Nov...	15.23	13.28	13.57	15.13	15.61	13.96	14.35	15.43	10.80	50.00	1.88
Dec. ..	14.95	12.83	13.38	14.75	14.98	13.32	13.76	14.83	10.50	47.00	1.77
Year ..	16.26	14.77	14.87	16.23	16.56	15.12	15.37	16.39	11.73	57.87	2.38
1914—										
Jan. ..	14.06	12.51	13.00	14.25	14.69	12.76	13.30	14.35	10.63	43.42	1.88
Feb. ..	14.13	13.21	13.21	14.00	14.88	13.02	13.56	14.46	10.52	38.33	1.90
Mar. ..	14.20	13.05	13.25	14.10	15.00	13.38	13.75	14.75	10.75	38.40	1.92
April .	14.00	13.00	13.25	14.25	15.00	13.75	14.21	14.75	10.52	38.00	1.90
May ..	14.00	13.00	13.17	14.10	14.91	13.57	14.25	14.68	10.50	38.00	1.82
June ..	14.00	13.00	13.00	14.00	14.51	13.01	14.35	14.21	10.29	38.00	1.80

* Contract price, f.o.b. Baltimore; †Prompt, f.o.b. Connellsville ovens.

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then only begin. Injected into the situation is undoubtedly a personal element, arising from various unfavorable viewpoints from which the individuals composing the present administration are regarded. All these things working together has produced an opposition to the national administration which in its suddenness and heat has perhaps never before been equaled in the history of the nation. Naturally men who hold these feelings so strongly as they do are not in the mood to enter into commitments and hence there is a strong deterrent influence to the progress of business.

There is, however, another group of forces, which will tend, whether successfully or not, to force greater business activity. When business is temporarily checked it stores up demand, though by no means at its full rate when there are actual losses, as of so many men out of employment and thus unproductive and unable to consume. The railroads have followed a severe policy of retrenchment, and possibly also they have actually withheld orders, by reason of the pendency of the rate case. With the settling of the rate case, and the accumulating of demand, pressure may come for greater activity. This, however, is an uncertain element as to time. A more certain element is the very bountiful crops which are practically assured. A car shortage is predicted in well informed quarters, despite the fact that the net surplus of idle cars on June 15th was 232,334. The west is promised to be given a great buying power and the west is more potent relative to the east, than it was even a few years ago.

That the resultant of the various forces will operate to increase the tonnage of steel moving in the market from month to month is the conclusion of the majority of observers in the steel trade. It is the common prediction that in tonnage the second half of the year will prove better than the first half, but there is doubt whether before the end of this year the gain in tonnage will prove sufficient to advance prices from the present very unsatisfactory level. Considering the technical position

FINISHED STEEL PRICES.

(Averaged from daily quotations, f.o.b. Pittsburgh.)

	Shapes.	Plates.	Bars.	Pipe.	Wire.	Wire Nails.	Cut Nails.	Sheets Black.	Sheets Galv.	Tin plate.	Composite Finished steel.
1913—											
January	1.50	1.50	1.40	80	1.55	1.75	1.70	2.32	3.47	3.60	1.7737
February ..	1.45	1.45	1.40	80	1.55	1.75	1.70	2.35	3.50	3.60	1.7625
March	1.45	1.45	1.40	80	1.56	1.76	1.70	2.35	3.50	3.60	1.7646
April	1.45	1.45	1.40	79¾	1.60	1.80	1.70	2.35	3.45	3.60	1.7743
May	1.45	1.45	1.40	79½	1.60	1.80	1.70	2.35	3.40	3.60	1.7786
June	1.45	1.45	1.40	79	1.55	1.75	1.70	2.29	3.38	3.60	1.7719
July	1.45	1.45	1.40	79	1.50	1.70	1.70	2.25	3.31	3.60	1.7600
August	1.45	1.44	1.40	79¼	1.47	1.67	1.60	2.20	3.25	3.60	1.7400
September..	1.40	1.40	1.40	80	1.43	1.63	1.60	2.12	3.17	3.60	1.7093
October ...	1.39	1.36	1.39	80	1.40	1.60	1.60	2.04	3.08	3.50	1.6779
November	1.34	1.29	1.30	80	1.40	1.60	1.60	1.98	2.98	3.40	1.6203
December ..	1.24	1.21	1.22	80	1.35	1.55	1.60	1.90	2.90	3.40	1.5558
Year	1.42	1.41	1.38	79¾	1.50	1.70	1.66	2.21	3.23	3.56	1.7241
1914—											
January	1.20	1.20	1.20	80	1.33	1.53	1.60	1.86	2.86	3.40	1.5394
February ..	1.25	1.21	1.22	79½	1.40	1.60	1.60	1.95	2.95	3.40	1.5794
March	1.21	1.18	1.20	79¾	1.40	1.60	1.60	1.95	2.95	3.40	1.5638
April	1.15	1.15	1.15	79¾	1.40	1.60	1.60	1.90	2.89	3.39	1.5337
May	1.13	1.14	1.14	80	1.38	1.58	1.60	1.85	2.79	3.30	1.5078
June	1.12	1.10	1.12	80	1.30	1.50	1.58	1.81	2.75	3.30	1.4750

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of the market, however, it seems reasonable to conclude that only a moderate stimulus given by an improvement in general business may prove sufficient within three months to induce enough replenishing of stocks and forward buying to fill the mills and allow prices to advance.

Finished Steel.

Plates, bars and shapes have all dropped squarely to a level of 1.10c, and this has been the market for several weeks. While the Pittsburgh basis obtains over a considerable territory, there is really a zone market, both the east and the Chicago district conceding portions of their freight advantage over Pittsburgh, such concessions often amounting to a dollar a ton. Apart from this, plates have sometimes been shaded.

Wire products have been very dull, a condition altogether seasonal. Normally buying would not begin until about August 1st, when the southern market opens. Stocks of wire products are particularly low for the season, and any move toward a general stocking up would in itself give

U. S. STEEL CORPORATION'S OPERATIONS.

EARNINGS AND UNFILLED ORDERS.

Earnings by Quarters.

Net earnings by quarters since 1908:

Quarter.	1914.	1913.	1912.
1st	$17,994,381	$34,426,801	$17,826,973
2nd	.....	41,210,813	25,102,265
3rd	.....	38,450,400	30,063,512
4th	.....	23,036,349	35,185,557
Year	.....	137,133,363	108,178,307
	1911.	1910.	1909.
1st	$23,519,203	$37,616,876	$22,921,268
2nd	28,108,520	40,170,960	29,340,491
3rd	29,522,725	37,365,187	38,246,907
4th	23,155,018	25,901,730	40,982,746
Year	104,305,466	141,054,753	131,491,412

Unfilled Orders.

(At end of the Quarter):

	First.	Second.	Third	Fourth.
1903..	5,410,719	4,666,578	3,278,742	3,215,123
1904..	4,136,961	3,192,277	3,027,436	4,696,203
1905..	5,579,560	4,829,655	5,865,377	7,605,086
1906..	7,018,712	6,809,584	7,936,884	8,489,718
1907..	8,043,858	7,603,878	6,425,008	4,642,553
1908..	3,765,343	3,313,876	3,421,977	3,603,527
1909..	3,542,590	4,057,939	4,796,833	5,927,031
1910..	5,402,514	4,257,794	3,158,166	2,674,757
1911..	3,447,301	3,361,058	3,611,317	5,084,761
1912..	5,304,841	5,807,346	6,551,507	7,932,164
1913..	7,468,956	5,807,317	5,003,785	4,282,108
1914..	4,653,825	.....	.....	.....

BOOKINGS AND SHIPMENTS.

In this table, first two columns, percentages of bookings and shipments to total capacity, are our estimates, while last column is derived from official reports of "unfilled tonnage" while third percentage column is directly computed from this tonnage column.

1912—	Shipments. %	Bookings. %	Difference. %	Difference. Tons.
March	85	68	-17	—149,359
April	92	124	+32	+360,044
May	93	101	+ 8	+ 86,098
June	94	99	+ 5	+ 56,363
July	82	95	+13	+149,733
August	92	110	+18	+206,296
September	98	135	+37	+388,132
October	98	187	+89	+1,042,874
November	96	120	+24	+258,512
December	97	104	+ 7	+ 79,281
January 1913	98	89	- 9	—104,796
February	98	82	-16	—170,654
March	93	77	—16	—187,758
April	93	51	—42	—490,194
May	95	41	—54	—654,440
June	93	47	—46	—517,005
July	90	55	—35	—407,961
August	90	75	—15	—175,888
September	82	64	—18	—219,683
October	87	74	—40	—490,018
November	70	59	—11	—117,420
December	50	40	—10	—114,239
January 1914	55	83	+28	+331,572
February	67	105	+38	+412,764
March	72	40	—32	—372,615
April	67	35	—32	—376,757
May	62	37	25	—278,908

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the mills very fair employment for several months.

Tubular goods are undergoing a fairly good movement, and on the whole have possibly shown a greater recovery from the May stagnation than any other important line. Prices on standard goods are well maintained, but on specialties there continues to be cutting which frequently extends to the cost level.

Sheets have undergone a fair recovery in demand, and mill activity promises to be substantially as great in July as in May or June. Prices are practically stationary. In blue annealed, black and galvanized, there are zone markets to a marked degree.

Tin plate has shown fairly good specifications, but with little new buying and two or three producers have evinced quite an appetite for orders.

Pig Iron.

Early in June there were fairly large purchases of southern pig iron, at a decline of 25 cents to $10.25, Birmingham, and these were followed by a moderate movement in the north. The market wholly lacked snap, however, and the trends in consumption, demand, production and prices are all stationary.

	On first of month.	Change during month.
January (1913)	$17.450	—17.5c
February	17.275	—33.0
March	16.945	—32.0
April	16.621	—61.0
May	16.015	—76.5
June	15.250	—55.0
July	14.700	—25.0
August	14.450	+17.5
September	14.625	+15.0
October	14.775	—20.0
November	14.525	—47.5
December	14.050	—50.5
January (1914)	13.545	—12.0
February	13.425	+45.0
March	13.875	- 2.5
April	13.85	0.0
May	13.85	—17.5
June	13.675	—12.5
July	13.60	—12.5

Billets and Sheet Bars.

Although many contracts expired June 30th there was practically no general buying movement. Contracts were quietly renewed, and in general on a slight revision of terms, billets at about $19.50 and sheet bars at $20. Second quarter deliveries were fairly good, but some tonnage held over.

WESTERN IRON AND STEEL MARKET.

Crop news has the right of way in the west. The largest wheat crop in the history of the country is being harvested under the most favorable conditions. There is plenty of moisture all through the west for corn, and the news of other crops is favorable. Agricultural conditions, in fact, are almost ideal, and ought to serve as a foundation for a general boom in trade.

Equally encouraging news comes from Washington. The manufacturers who were watching the situation threw up their hands in despair when they saw the nature of the series of "anti-trust" bills that passed the house. In the past week, however, the attitude of the Senate has changed. The most vicious features of the House bills have been laid aside, and with a little more progress in the same direction the business interests will be able to stand the proposed laws. It will be some time before the effect of this will be felt in the market, but it will go a long ways to restore activity.

Some lines of trade in Chicago are improving in the face of political pessimism. Trade is good with the wholesale grocers, and their orders from the west and southwest for fall shipment are the best they have ever had. The long building tie-up in Chicago on account of the strike of brick makers was settled early in the month, and building operations have been resumed. This has put more life into local trade.

Railroad Business Improving.

In the first half of the year the rail mills in this district have run at less than 25 per cent. of capacity, and the track supply mills or departments have not done much better. Several good rail orders have come out the past month, and more supplies are being specified. The railroads

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have gone the limit in curtailing their track work, and will have to get their road bed in shape before winter.

More Plate and Shape Orders.

The new car orders which have come out in the past two months have given the mills a respectable backlog in the way of specifications. Structural business is improving considerably, and this is adding to the new tonnage, but not enough to affect prices.

More Concrete Bar Business.

The demand for soft steel bars for concrete work is one of the bright spots in the market. This business is outgrowing the capacity of the rail re-rolling mills, and is furnishing a very respectable tonnage for the big mills. In fact, it has already outgrown the agricultural implement trade in the matter of tonnage.

The implement people are beginning to specify for the last half and are taking a fair tonnage. They have not cleared up their congestion of both finished goods and materials in their warehouses, but are looking for a good fall trade as a result of the large harvest. They expect to clean up and begin operations for the coming year on a normal basis.

The iron bar business is hit hard by the long "drouth" in railway buying. These mills depend chiefly on the railroads for their market and their prices have worked so low that when business does pick up it will take them a long time to get their trade back to a normal basis.

Several large buyers have been in the market the past month for considerable tonnages, but no general movement has materialized. The pipe business which was pending at the time this report was written a month ago has been fully reported. The American Radiator Company has bought a large tonnage for last half, including 5,000 or 6,000 tons of southern iron, but the principal plants of this company are at Detroit and Buffalo and use iron local to those points, and the tonnage closed there is not known here. The Crane Company of Chicago has made heavy purchases for Chicago delivery, estimated at 10,000 to 20,000 tons, but the astute buyer is careful to keep details covered. The L. Wolff Mfg. Company, which uses around 20,000 tons a year and has long enjoyed a reputation for buying right, has bought a considerable tonnage of northern and southern, presumably covering its requirements for the last half.

The implement manufacturers usually cover their last half requirements before July 1, but have not appeared in the market thus far. In fact, outside a few buyers there has been very little iron sold for third quarter, and very little for the fourth quarter. Foundries are generally carrying iron or have it due them on contracts to run into August and September, and they have been pursuing the "watchful waiting" policy. A turn in general business conditions would bring a very healthy buying movement, but without this improvement the demand may be satisfied indefinitely by straggling purchases of small lots.

NEW STEEL SPECIFICATIONS.

Revision of Specifications for Structural and Boiler Steel, Concrete Bars Rolled from Billets, and Concrete Bars Rolled from Rail Steel.

The Association of American Steel Manufacturers, Frank A. Robbins, Jr., Secretary, Steelton, Pa., has printed specifications as revised April 21st, as follows:

Structural and boiler steel.
Concrete reinforcement bars rolled from billets.
Rail steel concrete reinforcement bars.

In structural and boiler steel the principal changes are the narrowing of the tensile range for fire box steel from 10,000 pounds to 8,000 pounds, and new tables covering the permissible variations in gauge and weight of sheared plates. These tables replace tables which were adopted by the association in 1896 and which have since been widely cop'ed into nearly all plate specifications. The presentt tables, giving percentages of permissible variation up and down respectively, according to different thickness and widths of plates, refer to individual plates rather than to averages. The subdivision as regards width particularly is carried out in much more detail than in the old tables.

In the specifications for concrete reinforcement bars rolled from billets and intermediate grade of bars has been introduced, with a tensile strength of 70,000 to 85,000 pounds

PRICE CHANGES.

Price changes in merchant bars, structural shapes, plates, wire nails merchant pipe, sheets and tin plates are given below, with dates, from March, 1912. These are the commodities used in compiling our **composite finished steel**. In some cases the dates named are those upon which prominent producers announced price changes, but more frequently dates are merely those upon which our quotations were changed.

1912—			
April 22	Sheets	1.85	to 1.90
" 24	Bars	1.15	to 1.20
" 24	Plates	1.20	to 1.25
" 25	Shapes	1.20	to 1.25
May 7	Tin plates	3.30	to 3.40
June 1	Pipe	[illegible]	[illegible]
" 26	Bars	1.20	to 1.25
" 26	Shapes	1.25	to 1.30
" 26	Plates	1.25	to 1.30
July 1	Sheets	1.90	to 1.95
" 9	Tin plates	3.40	to 3.50
" 22	Wire nails	1.60	to 1.65
" 24	Sheets	1.95	to 2.00
" 25	Pipe	[illegible]	[illegible]
Aug. 1	Bars	1.25	to 1.30
" 1	Plates	1.30	to 1.35
" 1	Shapes	1.30	to 1.35
" 13	Sheets	2.00	to 2.05
" 20	Plates	1.35	to 1.40
" 20	Shapes	1.35	to 1.40
" 26	Wire nails	1.65	to 1.70
Sept. 4	Tin plate	3.50	to 3.60
" 4	Sheets	2.05	to 2.10
" 11	Sheets	2.10	to 2.15
" 26	Bars	1.30	to 1.35
Oct. 8	Plates	1.40	to 1.45
" 8	Shapes	1.40	to 1.50
" 9	Bars	1.35	to 1.40
" 10	Plates	1.45	to 1.50
" 10	Shapes	1.45	to 1.50
" 11	Sheets	2.15	to 2.25
Dec. 10	Wire nails	1.70	to 1.75
1913—			
Jan. 2	Pipe	[illegible]	to 80%
" 14	Sheets	2.25	to 2.35
[illegible]	Plates	1.50	to 1.45
" 1	Shapes	1.50	to 1.45
Mar. 24	Wire nails	[illegible]	to 1.80
April 14	Pipe	[illegible]	[illegible]
[illegible]	Pipe	[illegible]	to 79%
[illegible]	Wire nails	1.80	to 1.75
[illegible]	Sheets	2.35	to 2.30
[illegible]	Sheets	2.30	to 2.25
July 1	Wire nails	1.75	to 1.70
" 1	Pipe	[illegible]	[illegible]
" 12	Wire nails	1.70	to 1.65
[illegible]	Sheets	2.25	to 2.15
27	Plates	[illegible]	[illegible]

1913—			
Sept. 1	Shapes	1.45	to 1.40
" 22	Sheets	2.15	to 2.05
Oct. 2	Tin plates	3.60	to 3.50
" 3	Wire nails	1.65	to 1.60
" 16	Plates	1.40	to 1.35
" 21	Plates	1.35	to 1.30
" 23	Shapes	1.40	to 1.35
" 24	Sheets	2.05	to 2.00
" 27	Pipe	2½% extra	discount
" 28	Bars	1.40	to 1.35
Nov. 3	Tin plate	3.50	to 3.40
" 7	Bars	1.35	to 1.30
" 17	Sheets	2.00	to 1.95
" 25	Bars	1.30	to 1.25
" 25	Plates	1.30	to 1.25
" 25	Shapes	1.35	to 1.30
" 28	Wire nails	1.60	to 1.55
Dec. 2	Sheets	1.95	to 1.90
" 3	Shapes	1.30	to 1.25
" 4	Plates	1.25	to 1.20
" 11	Bars	1.25	to 1.20
" 22	Shapes	1.25	to 1.20
" 31	Sheets	1.90	to 1.80
1914—			
Jan. 6	Wire nails	1.55	to 1.50
" 7	Sheets	1.80	to 1.85
" 13	Wire nails	1.50	to 1.55
" 23	Sheets	1.85	to 1.90
" 30	Sheets	1.90	to 1.95
Feb. 2	Pipe	80%	to 79½%
" 2	Wire nails	1.55	to 1.60
" 4	Shapes	1.20	to 1.25
Mar. 9	Shapes	1.25	to 1.20
" 20	Plates	1.20	to 1.15
April 1	Bars	1.20	to 1.15
" 8	Sheets	1.95	to 1.90
" 17	Shapes	1.20	to 1.15
" 20	Pipe	79½%	to 80%
" 27	Sheets	1.90	to 1.85
" 29	Tin plates	3.40	to 3.30
May 19	Bars	1.15	to 1.12½
" 22	Wire nails	1.60	to 1.55
" 26	Shapes	1.15	to 1.12½
" 29	Plates	1.12½	to 1.10
" 29	Wire nails	1.55	to 1.50
June 9	Sheets	1.85	to 1.80
" 19	Bars	1.12½	to 1.10
" 19	Shapes	1.12½	to 1.10

COMPOSITE STEEL.

Computation for July 1, 1914.

Pounds.	Group.	Price.	Extension.
2	Bars	1.10	2.55
1	Plates	1.10	1.650
1½	Shapes	1.10	1.650
1	Pipe (3½ 3)	1.95	1.925
1½	Wire nails	1.50	2.250
1	Sheets (28 bl.)	1.80	1.800
½	Tin plates	3.30	1.650
10 pounds			14.675

One pound 1.4675

(Averaged from daily quotations.)

	1910.	1911.	1912.	1913.	1914.
Jan...	1.8625	1.7415	1.5123	1.7737	1.5394
Feb..	1.8475	1.7520	1.4878	1.7625	1.5794
Mar..	1.8475	1.7590	1.4790	1.7646	1.5638
April.	1.8400	1.7600	1.5206	1.774°	1.5337
May..	1.8325	1.7510	1.5590	1.7786	1.5078
June.	1.7955	1.6817	1.5794	1.7719	1.4750
July..	1.7755	1.6701	1.6188	1.7600	.....
Aug..	1.7550	1.6394	1.6784	1.7400	.....
Sept.	1.7470	1.6090	1.7086	1.7093	.....
Oct...	1.7350	1.5461	1.7588	1.6779	.....
Nov..	1.7305	1.4930	1.7750	1.6203	.....
Dec..	1.7380	1.4812	1.7789	1.5558	.....
Year.	1.7922	1.6570	1.6214	1.7241	.....

SCRAP IRON & STEEL PRICES.

	Melting Steel. Pitts.	Bundled Sheet, Pitts.	No. 1 R.R. Wrought, Pitts.	No. 1 Cast, Pitts.	No. 1 Steel, Phila.	Heavy Melt'g. Ch'go.
1912—						
Oct.	15.75	12.95	15.80	14.05	15.75	14.00
Nov.	15.35	13.12	16.00	15.00	15.30	13.80
Dec.	15.10	13.15	15.75	15.10	14.75	13.40
Year	13.76	11.92	14.16	13.28	13.82	12.30
1913—						
Jan.	15.00	13.10	15.35	14.65	14.50	12.75
Feb.	14.35	12.00	15.35	14.65	13.25	12.65
Mar.	14.35	11.60	15.35	14.60	13.60	12.50
Apr.	14.25	10.50	15.50	14.50	13.75	12.60
May	13.50	10.00	15.00	14.25	12.25	11.50
June	13.20	9.25	14.25	13.50	11.50	10.75
July	12.50	8.75	13.35	12.30	11.15	10.60
Aug.	12.40	8.25	13.25	12.50	11.85	10.75
Sep.	12.60	8.00	13.00	12.50	12.25	10.60
Oct.	12.25	7.40	13.00	12.40	11.20	10.35
Nov.	11.40	6.75	11.85	12.00	10.30	10.25
Dec.	11.00	6.40	11.65	11.60	9.75	9.25
Year	13.07	9.33	13.91	13.29	12.12	11.21
1914—						
Jan.	11.25	7.00	12.20	12.00	10.50	9.25
Feb.	12.00	8.25	12.80	12.50	11.50	10.70
Mar.	12.25	9.00	12.85	12.40	11.50	10.50
Apr.	12.25	9.00	12.00	12.15	10.80	10.00
May	11.75	9.10	11.75	12.25	10.60	10.00
June	11.75	9.10	11.75	12.25	10.50	9.80

COMPOSITE PIG IRON.

Computation for July 1, 1914.

One ton Bessemer, valley	$14.00
Two tons basic, valley (13.00)	26.00
One ton No. 2 foundry, valley	14.00
One ton No. 2 foundry, Philadelphia	14.50
One ton No. 2X foundry, Buffalo	13.00
One ton No. 2 foundry, Cleveland	14.25
One ton No. 2 foundry, Chicago	14.25
Two tons No. 2 Southern foundry Cincinnati (13.50)	27.00
Total, ten tons	$136.00

One ton $13.600

Averaged from daily quotations:

	1910.	1911.	1912.	1913.	1914.
Jan...	17.598	14.375	13.420	17.391	13.492
Feb..	17.215	14.340	13.427	17.140	13.721
Mar..	16.702	14.425	13.581	16.775	13.843
April	16.315	14.375	13.779	16.363	13.850
May .	15.750	14.242	13.917	15.682	13.808
June.	15.320	14.032	14.005	14.968	13.606
July .	15.131	13.926	14.288	14.578	.....
Aug..	14.727	13.874	14.669	14.565	.....
Sep...	14.612	13.819	15.386	14.692	.....
Oct...	14.435	13.692	16.706	14.737	.....
Nov..	14.415	13.532	17.226	14.282	.....
Dec..	14.408	13.430	17.475	13.838	.....
Year.	15.552	14.005	14.823	15.418	.....

UNFINISHED STEEL AND IRON BARS.

(Averaged from daily quotations.)

	Billets, Pitts.	Sheet bars, Pitts.	Rods, Pitts.	— Iron bars, deliv.— Phila.	Pitts.	Ch'go.
1913—						
Jan.	28.40	29.40	30.00	1.68	1.65	1.60
Feb.	29.00	30.00	30.00	1.67	1.65	1.59
Mar.	29.00	30.00	30.00	1.65	1.65	1.58
Apr.	27.50	28.00	30.00	1.68	1.65	1.58
May	27.00	27.50	30.00	1.68	1.65	1.55
June	26.50	27.50	29.00	1.61	1.65	1.50
July	26.50	27.50	28.50	1.55	1.65	1.50
Aug.	25.75	26.50*	28.00	1.42	1.62	1.44
Sep.	24.00*	25.00*	27.37	1.33	1.59	1.37
Oct.	22.50	23.25	26.50	1.32	1.54	1.27
Nov.	20.50	21.50	26.00	1.30	1.45	1.15
Dec.	20.00	21.00	25.25	1.25	1.37	1.12
Year	25.55	26.43	28.39	1.51	1.59	1.45
1914—						
Jan.	20.00	20.25*	25.75	1.24	1.35	1.11
Feb.	21.00	22.00	26.00	1.28	1.35	1.14
Mar.	21.00	22.00	26.00	1.28	1.35	1.15
Apr.	20.75	21.75	25.50	1.23	1.31	1.14
May	20.00	21.00	26.00	1.23	1.29	1.10
June	19.50	20.35	25.00	1.23	1.25	1.08

* Premiums for Bessemer.

IRON AND STEEL IMPORTS AND EXPORTS.

VALUE OF TONNAGE AND NON-TONNAGE.

	1909.	1910.	1911.	1912.	1913.	1914.
January	$10,329,388	$14,513,394	$18,738,391	$18,451,914	$25,141,409	$16,706,836
February	10,947,159	13,949,082	18,690,792	21,801,570	24,089,871	16,520,260
March	13,873,746	17,253,503	22,591,991	24,474,799	27,221,210	20,551,137
April	13,058,297	16,529,260	24,916,912	26,789,853	27,123,044	20,639,569
May	12,964,367	17,658,042	20,616,795	28,050,247	26,718,970	.....
June	13,779,736	16,503,204	20,310,053	24,795,802	25,228,346	.....
July	11,866,772	16,108,102	17,454,772	24,917,952	24,170,604	.....
August	14,134,487	17,628,537	20,013,557	25,450,107	23,947,440	.....
September ...	12,966,908	16,776,178	19,875,308	23,286,040	22,831,082	.....
October	14,249,598	17,452,085	20,220,833	25,271,559	25,189,745	.....
November ...	14,434,690	18,594,806	20,823,061	26,406,425	20,142,141	.....
December	15,069,246	18,300,710	22,186,996	23,750,864	22,616,701	.....
Totals	$157,674,394	$201,271,903	$249,656,411	$289,128,420	$294,435,060	$74,417,802

EXPORTS OF TONNAGE LINES— Gross Tons.

	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January	102,630	74,353	70,109	118,681	152,362	151,575	249,493	118,770
February	87,912	81,773	84,837	110,224	150,919	204,969	241,888	121,206
March	112,787	96,681	94,519	124,980	216,360	218,219	257,519	159,998
April	132,790	93,285	100,911	117,921	228,149	267,313	259,689	161,952
May	91,543	64,041	109,808	135,306	178,589	307,656	242,188	.....
June	92,996	69,770	114,724	120,601	174,247	273,188	243,189	.....
July	122,240	86,796	100,850	127,578	162,855	272,778	237,159	.....
August	118,792	86,244	105,690	131,391	177,902	282,645	209,856	.....
September	114,819	76,732	97,641	119,155	181,150	248,613	213,058	.....
October	123,170	85,766	110,821	129,828	186,457	251,411	220,495	.....
November	116,309	71,130	116,105	155,138	187,554	233,342	175,961	.....
December	86,019	77,659	137,806	150,102	190,854	235,959	195,719	.....
Totals	1,301,979	961,242	1,243,567	1,540,895	2,187,724	2,948,466	2,759,232	561,926

IRON ORE IMPORTS.

	1911.	1912.	1913.	1914
Jan. ..	102,600	154,118	175 463	101,804
Feb. ..	94,820	129,693	188,734	112,574
Mar. ..	134,785	157,469	164,865	68,549
April .	133,900	178,502	174,162	111,812
May ..	217,467	194,482	191,860	.....
June ..	118,296	180,122	241,069	.....
July ..	200,845	185,677	272,017	.....
Aug. ..	175,183	178,828	213,139	.....
Sept. ..	184,456	180,571	295,424	.....
Oct. ..	172,459	202,125	274,433	.....
Nov. ..	128,019	163,017	179,727	.....
Dec. ..	148,902	199,982	223,933	.....
Totals	1,811,712	2,104,556	2,544,826	394,739

IRON AND STEEL IMPORTS.

	1910.	1911.	1912.	1913.	1914.
Jan..	56,207	33,071	20,008	21,740	17,835
Feb..	43,613	20,812	11,622	25,505	14,309
Mar..	54,176	23,533	15,466	27,467	27,829
April	47,698	22,392	12,481	25,742	30,585
May.	42,569	23,347	15,949	28,572	.....
June	30,322	29,399	21,407	36,597	.....
July	41,933	15,782	17,882	39,694	.....
Aug..	36,879	10,944	20,571	18,740	.....
Sep..	30,961	14,039	18,740	19,941	.....
Oct..	31,455	21,035	25,559	20,825	.....
Nov..	40,585	13,880	24,154	25,809	.....
Dec..	31,575	19,665	21,231	26,453	.....
Total	487,973	256,903	225,072	317,244	90,558

COPPER.

COPPER IN JUNE.

The copper market, which in May had held so steady at almost unchanged prices, experienced a steady decline in June from 14.15c cash for Electrolytic, at which the month opened, to 13.30c at the close. This decline of over ¾c per lb. was the greatest change in prices that has taken place in any month since last November when prices fell from 16⅜ to 14¾c.

The producers' statistics issued June 8th were only in part responsible. These statistics showed that the production was in May 9,192,244 pounds less than in April, but as there was an even greater falling off in the deliveries, stocks increased 14,005,640 pounds. Probably the most disappointing feature was the decline in the domestic deliveries from 63,427,633 pounds in April to 55,592,170 pounds in May.

Compared with the same month a year ago the domestic deliveries showed a decrease of over 25,000,000 pounds and for the five months ended May, 1914 they amounted to only 284,415,764 pounds as against 360,739,151 pounds for the corresponding period last year, a decrease of 76,323,387 pounds or a little over 20 per cent.

The export deliveries were 13,184,250 pounds less than in April but for the five months ending May they were 52,040,164 pounds greater than in the corresponding five months of 1913.

The market might easily have been held steady had it not been for the generally unfavorable developments and stagnation in general business, with the attendant pessimism and lack of confidence in an early recovery to normal conditions. Also it became evident that the European buying, that for so long had been the sheet anchor of the American copper market was clearly showing evidences of falling off with indications that European consumers had overstocked themselves. It can easily be realized therefore that with our domestic consumption only about 65 to 70 per cent. of normal and our production as large as ever, stocks must increase substantially if the European demand fell off before our trade recovery commenced. Producers therefore bowed to what seemed the logic of the situation and reduced their prices to

14	c on	June 10th
13⅞	"	22nd
13¾	"	24th
13⅝	"	25th
13½	"	28th.

Little if any buying was attracted until the last day of the month when it became evident that buyers were getting interested in the low price, also that there was beginning to be a better feeling regarding future business prospects as a result of the crop outlook. It also had made an impression that the Claflin failure had only caused

COPPER PRICES IN JUNE.

Day.	NEW YORK Lake.	Electrolytic.	Casting.	LONDON Standard (Prompt)	Best Selected.
	Cts.	Cts.	Cts.	£ s d	£ s d
1.	14.37½	14.15	13.95	... .	.....
2.	14.25	14.00	13.85	62 6 3	67 10 0
3.	14.25	14.00	13.85	61 16 3	67 0 0
4.	14.25	14.00	13.85	61 17 6	67 0 0
5.	14.25	14.00	13.85	61 12 6	67 0 0
6.	.....	... ..	.....	.....	... .
7.	.....	.....	.....	.....	.....
8.	14.25	13.95	13.80	61 10 0	67 0 0
9.	14.25	13.90	13.75	61 17 6	67 0 0
10.	14.25	13.85	13.70	62 5 0	66 15 0
11.	14.25	13.85	13.70	61 17 6	66 15 0
12.	14.18¾	13.85	13.70	61 7 6	66 15 0
13.	.....	.....	.....	... ..	. . .
14.	.....	.....	.....	.....	.....
15.	14.18¾	13.85	13.70	61 12 6	66 15 0
16.	14.18¾	13.85	13.70	61 10 0	66 10 0
17.	14.18¾	13.85	13.70	61 16 3	66 10 0
18.	14.18¾	13.85	13.70	61 11 3	66 10 0
19.	14.12½	13.80	13.65	61 7 6	66 0 0
20.	.....	.....	.....	. . .	. .
21.	.....	... .	.....	.....	.
22	14.12½	13.75	13.55	61 0 0	65 15 0
23.	14.12½	13.75	13.55	61 0 0	65 15 0
24.	14.00	13.70	13.45	60 18 9	65 15 0
25.	13.93¾	13.62½	13.40	60 0 0	65 0 0
26.	13.87½	13.45	13.30	60 1 3	65 0 0
27	.....	... .	.....	... .	. . .
28.	.....	.....	.....	.....	.....
29.	13.87½	13.45	13.30	60 2 6	64 15 0
30.	13.87½	13.45	13.30	60 1 3	64 15 0
High	14.50	14.20	14.00	62 8 9	67 10 0
Low.	13.75	13.40	13.25	59 15 0	64 15 0
Av'ge.	14.148	13.815	13.65	61 6 8	66 5 5

COPPER.

LAKE COPPER PRICES.

Average monthly prices of Lake Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.93	12.75	14.37½	16.89	14.76½
Feb.	13.76½	12.75	14.38½	15.37½	14.98
Mar.	13.71½	12.56	14.87	14.96	14.72
April	13.31	12.41	15.98	15.55	14.68
May	12.98	12.32	16.27	15.53	14.44
June	12.83	12.63	17.13	15.08	14.15
July	12.62½	12.72	17.37	14.77	.....
Aug.	12.78½	12.70	17.61	15.79	.....
Sept.	12.72	12.57	17.69	16.72	.....
Oct.	12.90	12.47½	17.69	16.81	.....
Nov.	13.00½	12.84	17.66	15.90	.....
Dec.	12.92	13.79	17.62½	14.82	.....
Av..	13.12	12.71	16.58	15.70	.....

ELECTROLYTIC COPPER PRICES.

Average monthly prices of Electrolytic Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.68	12.53	14.27	16.75½	14.45
Feb.	13.51	12.48	14.26	15.27	14.67
Mar.	13.42½	12.31	14.78	14.92½	14.33½
April	12.93	12.15½	15.85	15.48	14.34
May	12.67	12.13	16.16	15.63	14.13
June	12.59	12.55	17.29	14.85	13.81
July	12.36½	12.62½	17.35	14.57	.....
Aug.	12.56	12.57½	17.60	15.68	.....
Sept.	12.49	12.39	17.67	16.55	.....
Oct.	12.77½	12.36	17.60	16.54	.....
Nov.	12.87½	12.77	17.49	15.47	.....
Dec.	12.72½	13.71	17.50½	14.47	.....
Av..	12.88	12.55	16.48	15.52	.....

CASTING COPPER PRICES.

Average monthly price of Casting Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.60	12.39	14.02	16.57	14.27½
Feb.	13.41	12.33	14.02	15.14	14.48
Mar.	13.31	12.20	14.53	14.76	14.18
April	12.87	12.07	15.72½	15.33	14.18
May	12.62	12.08	16.01	15.45½	14.00
June	12.52	12.40	17.08	14.72	13.65
July	12.30	12.49½	17.09	14.40½	.....
Aug.	12.48	12.42	17.35	15.50	.....
Sept.	12.46	12.23	17.51	16.37½	.....
Oct.	12.70	12.21	17.44	16.33	.....
Nov.	12.82	12.61	17.34	15.19	.....
Dec.	12.64	13.56½	17.34	14.22	.....
Av..	12.81	12.42	16.29	15.33	.....

VISIBLE SUPPLY OF COPPER.

Visible supply of copper at the end of each month based on the returns of the Copper Producers' Association and H. R. Merton & Company.

1910—	Stocks in American Producers' hands.	European Visible Supply.	Combined Visible Supply.
Mar. ..	123,824,874	249,607,680	373,432,554
April ..	141,984,159	246,863,680	388,847,839
May ..	160,425,973	239,265,600	399,691,573
June ..	168,386,017	232,863,680	401,249,697
July ..	170,640,678	222,295,360	392,936,038
Aug. ..	168,881,245	218,413,440	387,294,685
Sept. ..	148,793,714	210,472,640	359,266,354
Oct. ..	139,261,914	198,065,280	337,327,194
Nov. ..	130,389,069	193,200,000	323,589,069
Dec. ..	122,030,195	187,705,280	309,735,475
1911—			
Jan. ..	142,439,490	*236,976,320	379,415,810
Feb. ..	156,637,770	226,210,880	382,848,650
Mar. ..	162,007,934	223,030,080	385,038,014
April ..	165,555,908	212,280,320	377,836,228
May ..	165,995,932	202,413,120	368,409,052
June ..	157,434,164	195,937,280	353,371,444
July ..	137,738,858	192,584,000	330,322,858
Aug. ..	133,441,501	191,215,360	324,656,861
Sept. ..	140,894,856	191,945,600	332,840,456
Oct. ..	134,997,642	176,816,640	311,814,282
Nov. ..	111,785,188	164,151,680	275,936,868
Dec. ..	89,454,695	158,329,920	247,784,615
1912—			
Jan. ..	66,280,643	153,820,800	220,101,443
Feb. ..	62,939,988	141,135,680	204,075,668
Mar. ..	62,367,557	136,808,000	199,175,557
April ..	65,066,029	134,155,840	199,221,869
May ..	49,615,643	117,797,120	167,412,763
June ..	44,335,004	107,817,920	152,152,924
July ..	50,280,421	113,290,240	163,570,661
Aug. ..	46,701,374	113,783,040	160,484,414
Sept. ..	63,065,587	107,403,520	170,469,107
Oct. ..	76,744,964	103,801,600	180,546,564
Nov. ..	86,164,059	96,938,240	183,102,299
Dec. ..	105,312,582	96,857,600	202,170,182
1913—			
Jan. ..	123,198,332	96,546,240	219,744,572
Feb. ..	122,302,198	100,067,520	222,369,718
Mar. ..	104,269,270	†100,965,760	205,235,030
April ..	75,549,108	98,374,720	173,923,828
May ..	67,474,225	90,018,880	157,493,105
June ..	52,904,606	85,559,040	138,463,646
July ..	53,594,945	79,804,480	133,399,425
Aug. ..	38,314,037	76,260,800	114,574,837
Sept. ..	29,793,094	62,314,560	92,107,654
Oct. ..	32,566,382	57,854,480	90,420,862
Nov. ..	47,929,429	59,935,680	107,865,109
Dec. ..	91,438,867	66,124,800	157,563,667
1914—			
Jan. ..	87,296,685	58,114,560	145,411,245
Feb. ..	78,371,852	60,374,720	138,746,572
Mar. ..	64,609,319	58,528,960	123,138,279
April ..	70,337,001	65,582,720	135,919,721
May ..	84,342,641	72,486,400	156,829,041

* Hamburg and Rotterdam stocks included
† Bremen stocks included.

COPPER—TIN

stagnation in the stock market where it might easily have created acute demoralization. The business situation on the test showed that the country was liquidated to a standstill, hence in a position to be very sensitive to any good news.

On the belief that the railroad rate decision would be favorable, American interests at the end of June started buying Standards in London. This resulted in a sharp advance which made consumers prick up their ears, and during the first few days in July a large business was done at 13½c up to 13¾c delivered, 30 days, and to-day (July 6th) the producers' price is again established at 13⅝c.

The June statistics are not expected to make a good showing but as there is a much better sentiment in the trade an increase of 10,000,000 or 15,000,000 pounds in the American stocks would not be likely to disturb the market. The statistical position is not unfavorable despite the fact that we have been through a period of six or eight months of semi-stagnation in the American copper industry, and as we have said before the principal cause for alarm is that the European demand may fall away before the domestic demand picks up. If that does not occur then copper is in good shape.

WATERBURY AVERAGES.

The Waterbury averages for the month of June, 1914, were as follows:

Lake Ingot Copper 14.37½
Electrolytic Ingot Copper. 13.87½
Brass Mill Spelter . . . 5.37

	Copper — Lake	Copper — Electro		Spelter	
	1913.	1914.	1914.	1913.	1914.
Jan...	17.00	14.75	.....	7.56	5.54
Feb...	15.50	15.12½	.....	6.81	5.70
Mar..	15.12½	15.00	14.50	6.56	5.59
Apr...	15.75	14.87½	14.37½	6.08	5.50
May..	15.87½	14.75	14.25	5.77	5.38
June.	15.37½	14.37½	13.87½	5.50	5.37
July..	14.75	.....	...	5.61	....
Aug...	15.62½	.....	...	5.99	...
Sep...	16.87½	.....	...	6.13	...
Oct...	16.87½	.....	...	5.74	....
Nov..	16.25	...	....	5.60	
Dec..	15.00	...	..	5.44	...
Year.	15.83	.....	.....	6.06½	.

TIN IN JUNE.

Opening weak at 31.45c the market declined 1c per lb. on June 2nd on the publication of the May statistics which showed an increase of 2,415 tons in the visible to 17,862 tons.

A comparison shows the following:

	Visible Supply	Price
June 1, 1914.....	17,862 tons.....	30-½c
May 1, 1914.....	15,447 tons.....	34.00c
June 1, 1913.....	13,710 tons.....	46.70c
June 1, 1912.....	14,345 tons.....	46.35c
June 1, 1911.....	15,938 tons.....	46.50c

The statistics were taken as confirming the bear arguments that supplies were increasing at sources of production.

During the month the market had to contend with very unfavorable developments in the shape of liquidation and in some cases the inability of interests here and abroad to meet contracts thereby causing forced sales, and very little new buying by consumers. Strange to say, the market showed great resistance to going lower, and while 30.10 was touched on June 15th and 30c on June 24th, in each case the market recovered and the closing price for the month was 30½c or the same as on June 2nd.

The bears continued their predictions of increasing output and lower prices, but seemed shy at backing their words by sales, in fact the recoveries that took place were in almost every instance the result of the covering of shorts, but which would stop when market showed any strength.

A sharp change has taken place since the June statistics were published. These statistics showed some 1800 tons decrease in the visible supply and also that the consumption of tin had continued excellent both here and abroad.

American deliveries into consumption during June were good, amounting to 3,650 tons. The total for 6 months shows a decrease of 600 tons compared with the same time last year. The combined deliveries of London and Holland for June were 146 tons larger than that month last year. For the six months the increase in deliveries amounts to 867 tons. Shipments from the Straits for June were 1,048 tons larger than for the same month of last year. For the

TIN.

months of this year the increase in shipments amounts to 2,822 tons. Australia shipped in June 119 tons less compared with the same month of last year. For the 6 months of this year the shipments were 244 tons smaller compared with last year.

If the May statistics were taken to confirm the bear's contentions the June statistics had exactly the opposite effect, and there commenced to be some doubt as to the continued increase in output such as the market generally had been demoralized into believing. From July 1st the recovery has been rapid and in three successive business days prices have advanced £5 2s 6d in London and 1.20c here.

Since the bears' predictions of decreased consumption have not been confirmed, the crux of the situation is the output of the metal, and the shipments from the East Indies. Will they continue to increase at the rate of the last six months which showed 2,822 tons gain over the same period of last year. Advices now being received are that the increase will not be continued, but there is no reliable information on which to form an opinion.

It is quite evident, however, that the deterioration in the statistical position of tin has been a great deal more than discounted by the fall of nearly 10c per lb. since February and some of the leading bears in London are now known to be working for higher prices. A recovery in the next few weeks to 35c per lb. would surprise no one, this probably being the legitimate value of tin, supply and demand considered, when free from speculative manipulation.

TIN PRICES IN JUNE.

	New York.	London prompts.	London C. I. F.
	Cts.	£ s d	£ s d
1	31.45	.....	.....
2	30.50	138 0 0	145 0 0
3	30.75	139 0 0	140 0 0
4	31.00	140 0 0	140 10 0
5	30.50	138 0 0	141 15 0
6	.....	.....	.....
7	.....	.....	.....
8	30.80	139 0 0	140 5 0
9	30.75	138 15 0	141 5 0
10	31.25	141 0 0	141 5 0
11	31.25	141 0 0	143 5 0
12	30.87½	139 10 0	142 12 6
13	.....	.....	.....
14	.....	.....	.....
15	30.10	136 10 0	141 0 0
16	30.12½	136 5 0	138 10 0
17	30.50	137 5 0	138 0 0
18	30	138 0 0	139 5 0
19	30.50	137 10 0	140 0 0
20	.....	.....	.....
21	.....	.....	.....
22	30.65	138 7 6	139 5 0
23	30.85	139 7 6	140 12 6
24	30.70	139 2 6	141 12 6
25	30.00	135 15 0	140 15 0
26	30.12	137 0 0	138 0 0
27	.....	.....	.....
28	.....	.....	.....
29	30.9	137 15 0	139 5 0
30	31.0	137 17 6	140 0 0
High	31.45	142 0 0	145 0 0
Low	30.00	135 5 0	138 0 0
Average	30.653	138 9 3	140 11 6

Classification of Tin Imports.

Since January 1st.	1914.	1913.
Straits	19,084	19,182
Australian	40	235
Banca and Billiton	143	415
English	1,635	2,190
Chinese	855	970
Sundries	502	572
Total, tons	22,259	23,564

COMPOSITE METAL PRICES.

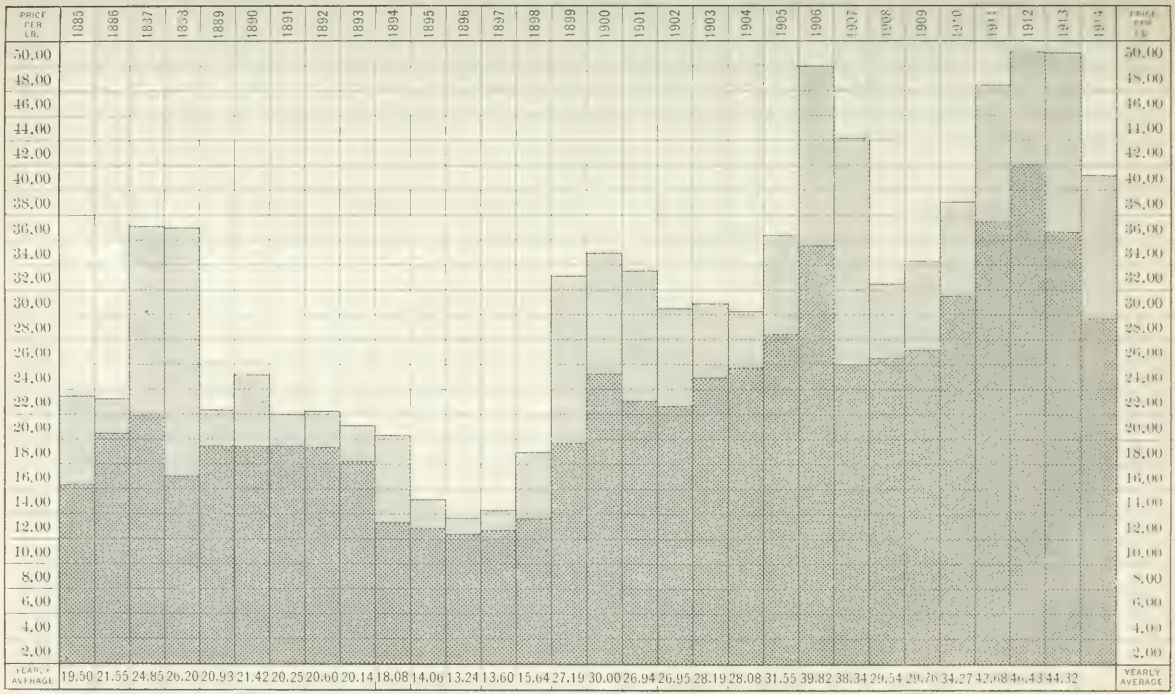
Computation for July 1, 1914:

Pounds.	Metal.	Price.	Extension.
2½	Spelter (St. Louis)	4.83¾	12.093
4	Lead (St. Louis)	3.77½	15.100
3	Copper (Electro)	13.55	40.650
½	Tin (New York)	31.15	15.575
10 pounds			83.418
One pound			8.3418

Monthly averages.

	1910.	1911.	1912.	1913.	1914.
April	8.568	8.795	10.277	10.198	8.844
May	8.413	8.795	10.468	10.163	8.678
June	8.362	9.154	11.014	9.648	8.431
July	**8.338**	9.100	11.043	9.398	.....
Aug.	8.479	9.188	11.092	10.025	.....
Sep.	8.569	8.928	11.575	10.350	.....
Oct.	8.747	8.990	11.596	10.029	.....
Nov.	8.888	9.306	11.372	9.590	.....
Dec.	8.881	9.675	11.219	9.053	.....
Year	8.665	9.046	10.750	9.977	.....

Tin Price Fluctuations—1885-1914.



Lowest Quotation

Note:—Plot for 1914 based on fluctuations during the first half of the year.

Highest Quotation

TIN.

MONTHLY TIN STATISTICS.

Compiled by New York Metal Exchange.

	June	May	June
	1914.	1914.	1913.
Straits shipments			
To Gt. Britain..	3,034	4,733	3,505
" Continent ...	1,351	1,157	985
" U. S.	1,285	933	332
Total from Straits	5,870	6,863	4,822
Australian shipments:			
To Gt. Britain..	131	145	250
" U. S.	nil	nil	nil
Total Australian.	131	145	250
Consumption:			
London deliveries	1,503	1,887	1,511
Holland deliveries	1,625	1,040	1,471
United States*...	3,650	3,800	3,800
Total	6,778	6,727	6,782
Stocks at close of month:			
In London	3,333	2,777	1,664
" (Stand)	3,080	3,022	†
" Holland	1,005	2,355	746
" U. S.*	1,358	1,773	1,154
Total	8,776	9,927	3,564
Afloat at close of month:			
To London	4,824	5,359	4,847
" Holland ...	183	183	183
" U. S.*	2,244	2,393	2,507
Total	7,251	7,935	7,537
	1914.	1914.	1913.
	June 30,	May 30,	June 30
[illegible]	16,027	17,862	11,101

* Exclusive of Pacific ports.
† Not reported.

TIN AND SILVER. (Monthly Averages.)

	New York					
	Tin			Silver		
	1912.	1913.	1914.	1912.	1913.	1914.
Jan.	43.24	50.4[illegible]	37.74	56.22	62.93	57.56
Feb.	43.46	48.73	39.93	59.04	61 64	57.50½
Mar.	42.86	46.88	38.08	58.37	57.87	58.07
Apr.	44.02	49.12	36.10	59.23	59.49	58.52
May	46.12	49.14	33.30	60.88	60.36	58.18
June	47.77	44.93	30.65	61.29	58.99	56.47
July	44.75	40.70	.....	60.66	58.72	.....
Aug.	45.87	41.72	.....	61.61	59.29	.....
Sep.	46.18	42.47	.....	65.08	60.64	.....
Oct.	50.11	40.50	.....	64.47	60.79	.....
Nov.	49.90	39.81	....	62.79	58.99	.....
Dec.	49.90	37.44	.....	63.37	57.76	.....
Year	46.43	44.32	.....	60.83	59.79½	....

VISIBLE SUPPLIES.

Total visible supply of tin at the end of each month.

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	21,895	23,024	18,616	16,707	13,971	16,244
Feb.	20,746	21,288	17,260	14,996	12,304	17,308
Mar.	19,208	20,203	16,682	15,694	11,132	16,989
Apr.	18,825	17,932	14,441	11,893	9,822	15,447
May	19,208	18,998	15,938	14,345	13,710	17,862
Jun.	18,208	15,700	16,605	12,920	11,101	16,027
July	20,244	17,433	16,707	13,346	12,063	.....
Aug.	19,182	17,943	16,619	11,285	11,261	.....
Sep.	21,419	18,999	16,672	13,245	12,943	.....
Oct.	18,724	18,183	14,161	10,735	11,857	.....
Nov.	20,025	18,875	16,630	12,348	14,470	.....
Dec.	20,918	17,194	16,514	10,977	13,893	.....
Av.	19,883	18,815	16,404	13,207	12,377	.....

SHIPMENTS FROM THE STRAITS.

Monthly shipments of tin from the Straits Settlements to Europe and the United States, as per Powell's returns:

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	5,733	5,895	4,290	4,018	6,050	5,290
Feb.	4,033	4,147	4,290	5,260	4,660	6,520
Mar.	3,380	2,877	4,510	5,150	4,810	4,120
Apr.	4,904	4,025	3,140	4,290	4,400	4,930
May	5,184	4,965	4,310	5,760	6,160	6,900
June	4,618	4,120	5,050	4,290	4,820	5,870
July	5,644	5,040	4,660	4,580	4,770	.....
Aug.	4,702	5,700	4,680	5,210	6,030	.....
Sep.	5,081	4,220	5,150	5,430	5,160	.....
Oct.	3,801	4,480	4,350	4,450	5,020	.....
Nov.	5,510	4,840	5,070	5,600	5,560	.....
Dec.	5,835	4,270	5,970	4,980	5,110	.....
	58,425	54,579	55,470	59,018	62,550	
Av..	4,869	4,548	4,622	4,918	5,213	

CONSUMPTION IN THE UNITED STATES.

Monthly deliveries of tin in the United States exclusive of Pacific Coast.

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	3,200	3,500	3,200	3,700	3,700	3,600
Feb.	2,700	3,600	3,800	4,050	3,500	3,300
Mar.	3,900	4,000	5,100	4,000	5,900	4,450
Apr.	3,200	4,100	3,300	5,400	3,450	4,300
May	3,900	3,600	3,400	4,250	3,350	3,800
June	3,200	3,000	2,900	2,850	3,800	3,650
July	3,600	3,800	4,300	5,150	3,900	.....
Aug.	3,300	3,700	3,800	4,300	3,600	....
Sep.	3,200	3,300	4,200	3,600	3,100	....
Oct.	4,100	3,350	3,500	3,850	3,700	.....
Nov.	4,000	3,800	3,100	4,300	2,800	.....
Dec.	3,200	3,600	3,700	4,050	3,100	.....
	41,500	45,350	44,300	49,500	43,900	
Av..	3,458	3,779	3,692	4,125	3,658	

ALUMINUM—ANTIMONY

ALUMINUM IN JUNE.

The aluminum market dull and irregular during the month of June but lately the market has shown a little more tone, due to the improved sentiment regarding business prospects in general. Like everything else aluminum has been affected by the depression of the past six months and consumption in almost every direction has been considerably below the 1913 record, but the feeling seems to exist that we have reached the low point and that the second half of the year will make a better showing than the first half.

Prices have been nominally quoted between 17.50 and 18.00c for domestic or foreign aluminum and as has been the case for some time the bulk of the business has been taken by the domestic producer.

It is known that some of the large consumers have not covered their requirements for the second half and therefore there may be considerable buying when it is definitely seen that the metal industries have commenced to improve.

Speculation in the metal is dormant, and dealers' stocks which amounted to considerable at the beginning of the year are almost all liquidated.

The European market which is under syndicate influences, remains steady and unchanged and the European makers seem to be satisfied that they cannot increase the sale of their products in this country at the present time.

There are no signs of any price war between European and domestic producers such as occurred two or three years ago.

ANTIMONY IN JUNE.

It is impossible to trace that there was any improvement in the demand for antimony during June, although the sellers made further concessions in prices. Ordinary grades were offered down to 5.40c for prompt delivery and 4.80 c.i.f., or about 5.25c duty paid, for future shipment without bringing any appreciable response from buyers despite the fact that these prices are practically the lowest on record.

It is claimed, however, that the consumption of Cooksons is about up to last year and if so it is the only brand that is being used in anything like normal proportions, other brands having shown a falling off of from 40 to 60 per cent. It is to be noted also that the spread between the price of Cooksons and ordinaries has widened to 1½ to 1¾c per lb. Antimony will benefit when the railroads commence placing equipment orders again and therefore the coming rate decision is likely to have considerable bearing on the market.

The imports of antimony for the ten months ended April were 9,782,390 pounds as against 17,636,714 pounds during the corresponding period a year ago, and the stocks in bond on June 1st were 1,361,354 lbs. as compared with 4,445,599 lbs. on June 1st, 1913.

ALUMINUM, ANTIMONY AND SILVER PRICES IN JUNE.

		Antimony			Silver	
	Aluminum	Cooksons.	Halletts.	Hungarian	New York.	London
Day	Cts.	Cts.	Cts.	Cts.	Cts.	d.
1.	17.87½	7.30	6.90	5.75	56½	....
2	17.87½	7.30	6.90	5.75	56⅛	25⅞
3.	17.87½	7.30	6.90	5.75	56⅛	25⅞
4	17.87½	7.30	6.90	5.75	56⅛	25⅞
5	17.87½	7.30	6.90	5.75	56⅛	25⅞
6	....	....	....	....	56⅛	25⅞
7	....	....	....	....	....	....
8	17.87½	7.30	6.90	5.75	56⅛	26
9	17.87½	7.25	6.85	5.70	56½	25⅞
10	17.87½	7.20	6.85	5.70	56⅛	26⅛
11	17.87½	7.20	6.85	5.70	56⅛	26⅛
12	17.87½	7.20	6.85	5.65	57¼	26¼
13	....	....	....	....	56⅛	26⅛
14	....	....	....	....	....	....
15	17.87½	7.20	6.85	5.60	56⅛	25⅞
16	17.87½	7.20	6.85	5.60	56⅛	25⅞
17	17.87½	7.20	6.85	5.55	56⅛	25⅞
18	17.87½	7.20	6.85	5.55	56⅛	25⅞
19	17.87½	7.20	6.85	5.55	55⅞	25⅞
20	....	....	....	....	56⅛	25⅞
21	....	....	....	....	....	....
22	17.87½	7.15	6.85	5.55	56⅛	26
23	17.87½	7.15	6.85	5.55	56⅛	25⅞
24.	17.75	7.15	6.80	5.55	56⅛	25⅞
25.	17.62½	7.15	6.80	5.50	56⅛	25⅞
26	17.62½	7.15	6.80	5.50	56⅛	26⅛
27	....	....	....	....	56½	26
28	....	....	....	....	....	....
29.	17.62½	7.15	6.80	5.50	56⅛	26⅛
30.	17.62½	7.15	6.80	5.50	56⅛	26
High	18.00	7.35	6.95	5.80	57¼	26¼
Low	17.50	7.10	6.75	5.45	55⅞	25½
Av.	17.824	7.214	6.852	5.629	56.171	25.95

SPELTER.

SPELTER IN JUNE.

The stagnant conditions which were the feature of the spelter market in May were continued during June. Opening at 4.97½c f.o.b. East St. Louis the market showed a tendency to go lower on account of the dullness of demand, generally unsatisfactory business conditions, and the certainty that the increase in stocks was continuing, but there was good resistance from the determination of producers to stock their metal rather than accept lower prices. The former influences proved to be the more powerful and prices eased off gradually to 4.82½c at the close of the month, the market being at that time depressed over the closing of the union sheet mills though a labor dispute. This matter has since been settled and the closed mills are expected to reopen in a few days. This has given a firmer tone to the market, as has also the improvement in the copper market, which is expected to favorably affect the brass trade.

Both the galvanizing and brass trades have for months been in an unsatisfactory condition, probably not operating over 65% to 70% of normal. Under the circumstances, spelter has made a fairly good showing in the matter of prices, although at the expense of increasing stocks.

From all we can learn the present rate of production is slightly over 60 per cent. of capacity or at the rate of about 250,000 tons per annum, a reduction of 10 per cent. from the average of the first half of the year. But the trouble took place earlier in the year when production was each month kept up ahead of consumption in the belief that the reaction in trade would not continue.

The production during the first half we estimate at 140,000 tons and the deliveries at 125,000 tons, and consequently we figure an increase in the smelters stocks of about 15,000 tons.

In the following table we give the actual figures for the past three years together with our estimates for the six months just ending:

	Production	Consumption
1911—	Tons	Tons
Jan.-June	140,196	134,902
July-Dec.	146,530	145,157
1912		
Jan.-June	166,496	159,046
July-Dec.	172,134	181,326
1913—		
Jan.-June	180,213	153,073
July-Dec.	166,463	142,297
1914		
Jan.-June	140,000	125,000

The next table shows the stocks at the smelters on January 1st and June 30th, together with the price of spelter at East St. Louis on corresponding dates:

	Smelters Stocks	Price E. St. Louis
1911—	Tons	Cents
Jan 1st.	23,201	5.35
June 30th	17,788	5.57½
1912—		
Jan. 1st.	9,049	6.25
June 30th	6,414	6.97½
1913—		
Jan. 1st.	4,474	7.15
June 30th	21,856	5.15
1914—		
Jan. 1st.	40,659	5.12½
June 30th	55,000	4.82½

According to these figures the consumption steadily increased and the stocks steadily diminished during 1911 and 1912, but commencing with the first half of 1913 the consumption has steadily diminished and the stocks have steadily increased thereby just reversing the order of the previous two years. The price fluctuations have fairly represented the changes in the statistical position as shown above.

SPELTER (Monthly Averages.)

	— New York —			— St. Louis —		
	1912.	1913.	1914.	1912.	1913.	1914.
Jan.	6.55	7.25	5.33	6.39½	7.04	5.14
Feb.	6.70	6.49	5.46	6.53	6.25	5.27
Mar.	6.93	6.29	5.35	6.74	6.08	5.15
Apr.	6.87	5.79	5.22	6.66	5.59	5.03
May	6.89	5.51	5.16	6.71	5.31	4.96
June	7.05	5.23½	5.12	6.85½	5.05	4.95
July	7.23	5.41	....	7.04	5.23	....
Aug.	7.13	5.80	....	6.94	5.64	....
Sep.	7.55	5.83	....	7.37	5.65	....
Oct.	7.61	5.47	....	7.39	5.27	....
Nov.	7.50	5.34	...	7.32	5.15	....
Dec.	7.36	5.22	...	7.19	5.03	....
Year	7.11	5.80	....	6.93	5.61	....

LEAD

LEAD IN JUNE.

The Trust price of lead has remained unchanged at 4.90c New York throughout the entire month, while the St. Louis market also showed virtually no fluctuation, the difference at no time being over $1 per ton or 3.82½c to 3.77½c E. St. Louis.

It is believed that at present prices, which have remained unchanged since April 27th, the Trust has been able to regulate the output to meet the stagnation in trade, and that they now await the expected improvement that will follow our bumper crops to enable them to obtain better prices. At 3.90c New York lead is selling at about 15% under the average of the last ten years, but until business improves any advance in prices would probably only result in the accumulation of surplus stocks. What the statistical position is at present no one knows since the lead producers unlike the copper producers issue no statistics.

Abroad lead is selling at a higher price than in the United States, which in view of past experiences seems absurd, but the foreign market has been more or less in a state of a continual corner, owing to the activities of the Syndicate that control the metal in Europe being centered in maintaining a high price. Occasional shipments have been made from this side to relieve the market abroad, but American producers place no reliance in these exports being continued on a large scale.

The consumption for white lead has been very good so far this year, but on account of seasonal requirements will now commence to slack off. But other trades that have been very depressed should now improve, in fact are almost certain to do so. The present consumption of lead is estimated about 70% of normal. How much the output has been curtailed to offset this is pure guesswork, for no statistics are available, but stocks must be considerably larger than they were on January 1st.

LEAD (Monthly Averages.)

	—New York*—			—St. Louis—		
	1912.	1913.	1914.	1912	1913.	1914.
Jan.	4.44	4.35	4.11	4.34	4.20	3.99½
Feb.	4.04	4.35	4.06	3.99	4.20	3.95
Mar.	4.07	4.35	3.97	4.06	4.21	3.83
Apr.	4.20	4.40	3.82	4.14	4.25½	3.70
May	4.20	4.36	3.90	4.09	4.22	3.81
June	4.39½	4.35	3.90	4.31	4.21	3.803
July	4.73	4.37	....	4.60	4.25	....
Aug.	4.56½	4.63	....	4.46	4.56	....
Sep.	5.05	4.75	....	4 94	4.62	....
Oct.	5.10	4.45	....	4.91	4.31	....
Nov.	4.69	4.34	....	4.50	4.18	....
Dec.	4.36	4 06	....	4.19	3.94	....
Year	4 48½	4.40	....	4.38	4.26	....

* Trust price.

SPELTER AND LEAD PRICES IN JUNE.

	SPELTER					LEAD				
	New York	St. Louis	London.			*New York	St. Louis	London		
	Cts.	Cts.	£	s	d	Cts.	Cts	£	s	d
1	5.15	4.97½	21	7	6	3.90	3.80	.....		
2	5.15	4.97½	21	7	6	3.90	3.81¼	19	2	6
3	5.15	4.97½	21	7	6	3.90	3.80	19	5	0
4	5.15	4.95	21	7	6	3.90	3.82	19	15	0
5	5.15	4.95	21	7	6	3.90	3.82½	19	13	0
6	..	..	..	..	..	..	..	..	..	..
7	..	..	..	..	..	..	..	..	..	..
8	5.15	4.95	21	7	6	3.90	3.82½	19	5	0
9	5.15	4.95	21	7	6	3.90	3.80	19	5	0
10	5.15	4.93¾	21	17	6	3.90	3.80	19	10	0
11	5.15	4.93¾	21	7	6	3.90	3.80	19	10	0
12.	5.15	4.93¾	21	7	6	3.90	3.80	19	15	0
13	..	..	..	..	..	..	..	..	..	..
14	..	..	..	..	..	..	..	..	..	..
15	5.15	4.9 .	21	7	6	3.90	3.80	19	12	6
16	5.15	4.93¾	21	7	6	3.90	3.80	19	10	0
17	5.10	4.92	21	5	0	3.90	3.80	19	7	6
18	5.10	4.92½	21	5	0	3.90	3.80	19	10	0
19	5.10	4.92½	21	5	0	3.90	3.80	19	10	0
20	..	..	..	..	..	..	..	..	..	..
21	..	..	..	..	..	..	..	..	..	..
22	5.10	4.92½	21	7	6	3.90	3.80	19	7	6
23	5.10	4.90	21	5	0	3.90	3.80	19	7	6
24	5.10	4.90	21	5	0	3.90	3.80	19	7	6
25	5.10	4.90	21	5	0	3.90	3.80	19	7	6
26	5.10	4.90	21	5	0	3.90	3.80	19	7	6
27	..	..	..	..	..	..	..	..	..	..
28	..	..	..	..	..	..	..	..	..	..
29	5.05	4.87½	21	10	0	3.90	3.78¾	19	7	6
30.	5.05	4.87½	21	10	0	3.90	3.78¼	19	5	0
High	5.20	4.975	21	10	0	3.90	3.825	19	15	0
Low	5.00	4.825	21	5	0	3.90	3.775	19	2	6
Av.	5.123	4.929	21	6	10	3.90	3.803	19	8	5

* New York lead price outside market.

JOPLIN LEAD AND ZINC ORE MARKETS.

A most singular condition is manifest in the statistics of the Joplin ore production for the half year ending with June, 1914. Although the average price paid for zinc blende concentrates fell off 12 per cent as compared with the first half of 1913, the average monthly production actually shows an increase of 475 tons per month over the same period of 1913. The total blende and calamine production as obtained by adding shipments and surplus stocks for the first six months of 1913 is 146,069 tons while the first six months of 1914 shows a zinc ore production of 148,910 tons. It is hard to interpret such a result from the known factors in the problem.

On examining the shipment and production tables of the two periods it will be noted that the year 1912 preceding 1913 was a prosperous year with high zinc prices prevailing which were presumably stimulating to production while 1914 had before it the year 1913 with its low price period the latter half of the year which would presumably depress production. Yet the results are just opposite what would be expected.

The one feature which accords with expectations lies in the large surplus stock in 1914 as compared with 1913. The first six months of 1913 ended with a surplus stock of but 1,800 tons while the same period of 1914 showed a surplus stock of 10,500 tons which is also admittedly very conservative. It is believed that when the surplus piles are weighed up and sold the present estimates will be found to be from 15 to 25 per cent below the actual quantities. This being true, the apparent increase in the ore production for the first six months of 1914 is only all the more difficult of explanation. With a shrinkage of $945,226 in the value of shipments as compared with 1913, the present year is therefore making a record in output which has more than ordinary significance.

A part of the increase in output has been shown and explained from time to time by the great activity in the calamine camps and in the second place by the noted increase of activities in the rich Miami camp where production costs are believed to be much lower than the average of the district. On the other hand the remarkable decrease in the number of rich Joplin mines and the numerous mines in the sheet ground camps closed down makes it appear that the showing of increased production is almost miraculous. But the fact remains.

Still another feature worthy of note is the relative high price paid for zinc ores as compared with the price of spelter. The ratio for some time past has been over 8 to 1 which would indicate that the demand for Joplin ores was good relatively speaking. This ratio was expected to be more nearly 7 to 1 by those who saw in the remarkable increase of zinc production from Butte a supply of zinc ores that would seriously take away from the demand hitherto satisfied in Joplin. Apparently this big output of Butte ores has not yet affected the demand for the Joplin product. The Joplin superiority of grades and the adaptability of special uses in the manufacture of pure spelters, for sheet and brass specials may yet be sufficient to take care of all of Joplin's zinc output without impairing the relative price levels.

Lead ore production to date shows a decrease of 1,600 tons and a decrease of approximately nine per cent from the prices paid during the same period of 113.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., of The Steel and Metal Digest, published monthly at New York, N. Y., required by the Act of August 24, 1912.

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C. S. Trench, Editor.

Sworn to and subscribed before me this second day of April, 1914.

John Bowen,
(Seal) Notary Public, Kings Co.
Cttf. filed in N. Y. County.
(My commission expires March 30, 1916.)

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AN UNPRECEDENTED SITUATION AND OPPORTUNITY.

From every position from which it is viewed one has to acknowledge that not only is the present situation unprecedented, but one such as the wildest imagination could never conjure up as possible of taking place. Even those who have for years been watching the arming of the nations of Europe against each other, and predicting that instead of making war impossible it was creating a powder magazine that might explode from some insignificant lighted match, have been appalled at the explosion.

With the five largest nations and two of the smaller ones at war, and the remaining few threatened with a like situation; with Japan the strongest nation in the East about to join the fray, the imagination is staggered.

As was to be expected the whole machinery of business has collapsed in the countries involved and more or less everywhere else.

No one ever believed they would ever see a condition where it is impossible to conduct or finance operations between various countries of the world. Gold payments are suspended everywhere, even with the Bank of England, and England has been obliged to edict a moratorium and to guarantee the discounts of that bank. Also every Exchange the world over has been closed for nearly three weeks, with no immediate prospect of reopening.

But why try to recapitulate the large list of extraordinary and unprecedented happenings. The present war in Europe brings home to us the fact that one of our best assets is the expanse of water that divides us from Europe on the East, and from Asia on the West, and the wisdom of continuing a splendid isolation of friendship with all,

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alliances with none; and thankfulness that we are in no way responsible for the calamity that has overwhelmed our fellow nations.

What is to be the outcome of the present calamity on the world, and what is to be its effect on our country and its industries?

It means that a new Europe will be called into existence.

Terrible as the present contest is, we believe it will prove the birth throes of a new and better condition to all of the nations involved. The power of an individual or a few individuals to decree a war and the slaughter of hundreds of thousands will pass from the civilized world. The spectacle of armies engaged with every device of science in killing each other, between the individuals of which no animosity exists is not likely to be again repeated. The "rights of man" in its truest sense will be restored to the individual, and we believe it will find its political expression in Government in which the people rule and decide their own destinies for weal or woe. The price being paid is an awful one, but for the welfare of the future, it is well worth all it will cost.

To America it means the beginning of a new era of opportunity and accomplishment, a greater confidence in those ideals of Government and institutions that if we faithfully adhere to must keep us in the front as the leading nation of the world. But with all this opportunity let us not forget the responsibilities also.

It must be appreciated and grasped by the individual and to some extent also by those we have put at our head to control our national affairs. We are at the end of this war to have an exhausted Europe with its trade machinery demoralized, not only for the conduct of their home trade, but for their foreign trade. After seeing with how much care and toil this has been built up, it is deplorable to see it shattered, but we are in no way responsible.

Surely history will not record, that when this great opportunity was presented we were "weighed in the balance and found wanting," through failure of seeing the vision, and appropriating its fulfillments to ourselves.

To be accomplished it must be done by big thinking and big action. It also requires leadership, and we should see to it that those who have been trying to lead us to big things along other lines than the grocery store idea are encouraged.

Big things are before us, and they can only be done along big lines, and under the leadership of big men. We have shown the commercial world we have such men of big ideas and that they are not all selfish and wrapped up in their own advancement—nor the malefactors as we have been asked to believe them to be.

If brains and bigness be a crime, God help the simple and the small.

We must be as scientific and painstaking as the German, as imaginative and economical as the French, as enterprising and courageous as the Englishman.

We have mixed in our veins the same bloods, and can supply a composite to represent all the admirable business traits of our competitors.

A satisfactory international trade is impossible without ships under our own flag to insure distribution of our goods, and a navy strong enough to protect against any possible interference in the seas through which our goods will have to travel. If we had any doubts of this the happenings of the past three weeks must have dispelled them.

THE EFFECT OF WAR ON METALS.

Instead of issuing at the beginning of the month as we usually do, we have decided in view of the outbreak of war in Europe with which the month opened, to delay **The Steel and Metal Digest** until this time, in order to give our readers some report of what the effect has been on prices by reason of the extraordinary conditions created. These conditions have been the complete breakdown of international exchange, making it next to impossible to finance imports and exports, and in addition the complete cutting off of the Continent of Europe from which to receive or send merchandise, not only on account of finances, but also on account of the virtual closing of the seas, except to English ports, and even in that case with difficulty. Also the placing by the English government of what is really an embargo on the shipment from that country of metals and other lines of merchandise.

As far as the nations engaged in war are

EDITORIAL.

concerned for international trading, with the exception of England, they might at present be off the map.

The effect on metals as was to be expected, has been to wildly excite and advance those like **Tin** and **Antimony** that we do not produce; to completely shut off the demand for **Copper** which we export largely, while **Spelter** has advanced on a heavy demand and inquiry from England, **Lead** remaining stagnant and apparently not influenced either way as yet.

The following shows the fluctuations since the war broke out:

New York.	Straits Tin	Electro Copper	Spelter	Lead	Hungarian Antimony
July 31.	33.50	12.87½	5.05	3.90	5.56¼
Aug. 3..	50.00	12.75	5.05	3.90	6.12½
" 4..	56.00	12.62½	4.95	3.90	6.62½
" 5..	60.00	12.56¼	4.95	3.90	8.12½
" 6..	61.00	12.56¼	4.95	3.90	11.00
" 7..	65.00	12.56¼	5.05	3.90	14.50
" 10.	65.00	12.43¾	5.30	3.90	17.50
" 11.	65.00	12.37½	5.45	3.90	16.50
" 12.	64.00	12.37½	5.55	3.90	16.50
" 13.	60.00	12.43¾	5.55	3.90	16.00
" 14.	50.00	12.43¾	5.65	3.90	15.00
" 17.	44.00	12.37½	5.70	3.90	14.00
" 18.	49.00	12.31¼	5.80	3.90	14.00
" 19.	49.00	12.25	5.85	3.90	13.50
" 20.	46.00	12.31¼	6.00	3.90	13.50

STEEL PRODUCTION IN 1913.

The statistics of steel production in 1913, just returned, and given in full on another page, indicate that there was a smaller consumption of scrap relative to pig iron than in the preceding year. In general, the proportion of basic pig iron to basic open-hearth steel has been increasing since 1901. The popular superstition that enormous quantities of old material are consumed in the basic open-hearth furnace was referred to in the "Topical Talk" in our June issue. A large quantity of scrap is used, it is true, but the scrap is chiefly new scrap, and the tonnage available is therefore in direct to the total amount of steel produced. It is not the case, therefore, as supposed in some quarters, that the increased outcome of old material is making possible the use of smaller proportions of pig iron in basic open-hearth steel manufacture. A more important influence is the decadence of Bessemer steel manufacture whereby there is a smaller proportion of new scrap furnished now than formerly. From 1906, the banner year for Bessemer steel production, to 1913, there was a decrease in Bessemer steel ingots and castings of more than 22 per cent, whereas the basic open-hearth steel in the same time increased 110 per cent.

In 1913 the production of basic pig iron was 61.6 per cent as great as the production of basic open-hearth steel ingots and castings, showing a remarkable jump from the proportion in 1912, which was 58.1 per cent. The lowest proportion was shown in 1901, or 40.0 per cent, since when there has been an almost constant increase. A general review of "Scrap and the Open-hearth" was given in our issue of February, 1912, and it was there pointed out that year by year scrap was growing scarcer, but the problem was met as it arose by the metallurgists who devised processes calculated to operate without scrap, and progress in this direction kept close pace with supply and demand, whereby it would always be the case that scrap would be cheap to the steel maker at one price and dear at another, and the two prices would be surprisingly close together, by reason of the adequacy of the new processes to meet conditions.

The most important of these new processes is the duplex process, in which the molten iron is blown in a converter and then finished in a basic open-hearth furnace. This process can use scrap, but normally it is expected to do without it. Statistics of duplex steel are available only for the past two years, but they show an increase from the one year to the next of 53.6 per cent, the tonnage being 1,438,654 tons in 1912 and 2,210,718 tons in 1813.

Eliminating the duplex process, it still appears that the works using other processes decreased their proportion of scrap from 1912 to 1913. One may figure the proportions roughly, but with a fair degree of accuracy, by deducting from the basic pig iron produced a tonnage equal to the duplex steel, and deduct from the steel likewise the duplex tonnage. The computation shows, for the industry apart from duplex

steel, 54.8 per cent pig iron and steel in 1912 and 56.9 per cent in 1913.

DECREASED SHEET AND TIN PLATE PRODUCTION.

In 1913 the production of tin plate was 14 per cent less and the production of sheets (13 gauge and lighter, exclusive of black plates for tinning) was 10 per cent less, than in 1912. The 1913 output however, showed large gains over any preceding year, and the drop from 1912 to 1913 may be regarded in the light that 1912 was an exceptionally good year rather than that 1913 was a poor year.

The combined output of sheets and black plates in 1913 was 2,495,930 gross tons, almost all steel, and thus constituting approximately 10 per cent of the total production of rolled steel. The official statistics of rolled steel have not yet been presented. Statistics for 1913 to date include pig iron, steel ingots and castings, rails, structural shapes, plates, sheets and tin plates.

A departure is made in the 1913 statistics. For 1912 and previous years the sheet statistics were gathered in the form of sheets, 13 gauge and lighter, including black plates for tinning, and then black plates for tinning were reported separately. Sheets 12 gauge and heavier were simply reported with plates.

In the 1913 statistics the total tin mill output is given, 1,030,629 gross tons, and then the black plates for tinning are stated separately, at 827,266 tons, when we gather that the output of "tin mill black sheets" was 203,363 tons.

The output of sheets, 12 gauge and heavier, is another new item in the statistics, and is given for 1913 at 252,337 gross tons.

The full statistics are given in detail on another page.

MID-YEAR SPELTER STATISITICS.

Production and Apparent Consumption About Normal During the First Half of the Year.

Production, Consumption, Stocks.

Figures compiled by C. E. Siebenthal, of the United States Geological Survey, from reports by all zinc smelters operating during the first six months of 1914 show that the production of spelter from domestic ore in that period was 171,496 short tons and from foreign ore 3,562 short tons, a total production of 175,058 tons, compared with 166,463 tons for the last half of 1913 and 180,213 tons for the first half. The spelter made in Illinois increased about 9,000 tons, that made in Kansas declined about 8,000 tons, and that made in Oklahoma increased about 5,000 tons, compared with the quantities of spelter made in those States during the last six months of 1913. The stock of spelter held at smelters on June 30, 1914, was 64,039 tons, against 40,659 tons at the beginning of the year and 21,856 tons at the middle of 1913.

From the foregoing figures and the records of the Bureau of Foreign and Domestic Commerce it is calculated that the apparent consumption for the period was 149,363 tons, which, compared with 132,387 tons for the last half of 1913 and 153,073 tons for the first half, seems not much below the normal.

Imports and Exports.

Imports of spelter were 506 short tons, compared with 567 tons during the last half of 1913 and 5,533 tons during the first half. The exports of spelter of domestic origin were 773 tons, against 1,168 tons in the last half of 1913, and 6,615 tons in the first half. The exports of spelter of foreign origin, including spelter exported from bonded warehouse, as well as articles manufactured from spelter of foreign origin and exported with benefit of drawback, were 2,048 tons, compared with 4,672 tons in the last half of 1913 and 8,724 tons in the first half. The imports of zinc dust were 1,272 tons, of which 269 tons came from Australia.

Imports of zinc ore were 9,052 short tons, containing 2,949 tons of zinc, compared with 11,422 tons of ore, containing 4,293 tons of zinc, in the last half of 1913, and 19,994 tons of ore, containing 9,204 tons of zinc, in the first half. Of the imports of zinc in ore in 1914 about three-fourths came from Canada. The exports of domestic zinc ore were 8,042 tons, compared with 7,968 tons in the last half of 1913 and 9,745 tons in the first half.

Prices and Values.

The price of spelter at St. Louis started at 5.125 cents and rose to a maximum of

35 cents on February 4th and 5th. A gradual decline, followed by a sharp break in April, brought the price down to 4.875 cents on April 28th. A slight recovery was again followed by a decline, and the period closed with spelter at 4.825 cents per pound. The average St. Louis price for the first half of the year was 5.1 cents. The London price of spelter opened at £21 10s a long ton (4.648 cents a pound) and reached the highest point in the latter part of January, at £21 12s 6d a long ton (4.675 cents a pound). The price was nearly stationary for the next three months, closing the period at the same figure at which it began, £21 10s a long ton (4.648 cents a pound). The minimum price of the year, £21 5s a long ton (4.594 cents a pound), prevailing during the latter part of June, was less than one-tenth of a cent below the highest price of the year.

At the average St. Louis price for the first six months of 1914 the value of the spelter from domestic ore was $17,492,592, and the value of the total output from both domestic and foreign ores was $17,855,916, compared with $17,608,402 and $17,645,078 for the last half of 1913 and with $20,193,930 and $21,265,134 for the first half of 1913.

Spelter Statistics, 1911-1914, by 6-Month Periods.

	Jan. 1 to June 30, 1911.	July 1 to Dec. 31, 1911.	Jan. 1 to June 30, 1912.	July 1 to Dec. 31, 1912.	Jan. 1 to June 30, 1913.	July 1 to Dec. 31, 1913.	Jan. 1 to June 30, 1914.
Supply:							
Stock at beginning	23,232	17,788	9,081	6,414	4,522	21,856	40,659
Production—							
From domestic ore ..	135,061	136,560	159,952	163,955	171,135	166,117	171,496
From foreign ore	5,137	9,970	6,544	8,355	9,078	346	3,562
Imports	146	463	3,053	8,062	5,533	567	506
Total available	163,574	164,581	178,630	186,786	190,268	188,886	216,223
Withdrawn:							
Foreign exports	7,903	6,452	7,331	174	8,724	4,672	2,048
Domestic exports	2,981	3,891	5,839	795	6,615	1,168	773
Stock at close	17,788	9,081	6,414	4,522	21,856	40,659	64,039
Total withdrawn	28,672	19,424	19,584	5,491	37,195	46,499	66,860
Apparent consumption ..	134,902	145,157	159,046	181,295	153,073	132,387	149,363
Spelter made in—							
Illinois	41,255	41,875	44,224	44,173	53,524	53,130	62,062
Kansas	50,574	47,839	52,485	48,619	42,645	31,461	23,737
Oklahoma	19,997	26,318	36,010	40,915	43,253	39,961	45,443
All other States	28,370	30,298	33,777	38,603	40,791	41,911	43,816
	140,196	146,330	166,496	172,310	180,213	166,463	175,058
Zinc ore imported	37,885	38,097	27,049	16,891	19,994	11,422	9,052
Zinc content	15,028	17,112	12,228	5,339	9,204	4,293	2,949
Zinc ore exported	9,625	8,650	13,709	9,640	9,745	7,968	8,042

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WORLDS' PRODUCTION AND CONSUMPTION OF METALS.

The German edition of the annual statistics issued by the Metallgesellschaft and Metallbank Metallurgische Gesellschaft of Frankfort-on-Main, has been received and as usual contains complete detailed information concerning the production and consumption of metals during the year 1913.

The world's production of the four most important metals as computed by the authorities named is given below, in metric tons:

	1911.	1912.	1913.
Lead	1,136,000	1,181,800	1,186,700
Copper	893,800	1,018,600	1,005,900
Spelter	902,100	977,900	997,900
Tin	117,600	124,700	128,900

The respective shares of Europe and the United States in the world's production of lead, copper and spelter according to smelting works output was as follows, in metric tons:

	1911.	1912.	1913.
Lead—			
in Europe..	468,500	547,000	574,000
in U. S.	377,900	387,300	407,800
Copper—			
in Europe..	181,900	195,300	186,500
in U. S.	518,700	592,900	589,100
Spelter—			
in Europe..	632,900	661,100	673,900
In U. S.	267,500	314,500	320,300

The consumption of metals in Europe and United States, in metric tons was as follows:

	1911.	1912.	1913.
Lead—			
in Europe..	704,500	711,500	713,900
in U. S.	364,400	398,400	401,300
Copper—			
in Europe..	602,500	623,500	643,100
in U. S.	321,900	371,800	348,100
Spelter—			
in Europe..	652,400	667,700	675,000
in U. S.	251,600	312,900	313,300
Tin—			
in Europe..	62,800	65,500	68,900
in U. S.	48,000	51,700	45,000

The production and consumption by countries in 1913 is given below:

Lead.

	Production.	Consumption
Spain	203,000	(a)
Germany	181,100	223,500
France	28,000	107,600
Great Britain	30,500	191,400
Belgium	50,800	42,900
Italy	21,700	32,600
Austria-Hungary.	24,100	35,500
Greece	18,400	(a)
Norway-Sweden.	1,500	(a)
Russia	1,000	58,800
Turkey in Asia..	13,900	(a)
Holland	.....	9,500
Switzerland	.....	5,800
Rest of Europe..	.....	6,300
United States ...	407,800	401,300
Mexico	62,000	(b)
Canada	17,100	22,900
Japan	3,600	18,500
Australia	116,000	9,600
Rest of world ...	6,200	30,600
Total	1,186,700	1,196,200

(a) Included in rest of Europe.
(b) Included in rest of world.

Copper.

	Production.	Consumption.
Germany	41,100	259,300
Great Britain.....	52,100	140,300
France	12,000	103,600
Italy	2,300	31,200
Austria-Hungary.	4,100	39,200
Russia	34,300	40,200
Spain	23,600c	(a)
Servia	6,400	(a)
Rest of Europe ..	10,600	13,300
Belgium	.....	15,000
Holland	.....	1,000
United States ...	589,100	348,100
British No. America	13,800	(b)
Rest of America.	90,000	3,000
Asia (Japan)	77,200	
Australia	41,800	50,300
Africa	7,500	
Exports from East to Europe and America	.....	69,800
Total	1,005,900	1,044,500

(a) Included in Rest of Europe.
(b) Included in Rest of America.
(c) Exports.

(Continued on page 357.)

BUSINESS TRENDS.

IDLE RAILWAY CARS.

The fortnightly bulletin of the American Railway Association reports a surplus of idle cars on August 1st of 196,665 compared with 226,541 on July 15th, a decrease of 29,876. The gross surplus was 198,998 against 228,384, while the shortage increased from 1,333 to 2,333.

More attention than usual has been turned toward the surplus of idle cars on the lines of the United States and Canadian roads this year, on account of the comparatively large totals of rolling stock available.

The big crop movement in the Southwest is at hand, and the Northwestern grain will begin to move in bulk to market in about a month. Then the annual test will come. There are factors in the situation that possibly may upset all calculations. If the western railroad employes carry out their threats, and tie up western roads, loaded and unloaded equipment would be piled high and dry along thousands of miles of tracks.

The net surpluses on various dates since January 1st, 1913, are compared in the following table:

1914—			
Aug. 1	196,665	Apr. 15	212,869
July 15	226,541	Apr. 1	139,518
July 1	219,545	Mar. 15	‡124,865
June 15	232,334	Mar. 1	153,907
June 1	†242,572	Feb. 15	197,052
May 15	238,642	Feb. 1	209,678
May 1	228,879	Jan. 15	214,889
		Jan. 1	188,850

OUR FOREIGN TRADE.

Washington.—The first nine months' operations of the new tariff law showed a foreign commerce of $3,243,566,840, being, with on exception, the largest total even shown for a like period, and falling only 2.17 per cent below the high record made in the October-June period of 1812-1913.

Imports, according to the official figures of the Department of Commerce, in the nine months ended with June last amounted to $1,446,127,491, against $1,364,765,233 in the corresponding period one year ago and $1,284,093,701 in the same period two years ago.

Free merchandise imported during the first nine months of the present tariff law aggregated $893,602,100, forming 61.8 per cent of the total imports, compared with 54.9 per cent in the corresponding period a year earlier.

Exports during the nine months under review totaled $1,797,439,349, with one exception the largest October-June total ever shown, being 7.8 per cent below the high record made in the nine months ended June 30, 1913, and 3.5 per cent above the best record made in the corresponding period of any earlier year. The falling off in exports, which had been somewhat pronounced in the period from November to May last, seems to have about culminated, since the figures for June were only $6,285,465 below June of last year and were considerably more than those of any prior June in the history of the export trade.

COMMODITY PRICES.

"Bradstreets" latest index number has for the first time in six months shown an increase. The figures work out at 8.6566 the ratio of increase over the preceding month being four-tenths of one per cent. With the exception of the figures reported for May and June of the current year, the most recent number is the lowest noted since July of 1911. The loss from July 1st of last year is 3.4 per cent; from the like time in 1911 it is practically 5 per cent, while as compared with July 1st, 1910 the decrease is 3 per cent and the drop from 1907 is 4.2 per cent.

The following table gives "Bradstreets" index numbers (the totals of the prices per pound of ninety-six articles) since January 1, 1909:

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	8.263	9.231	8.836	8.949	9.493	8.885
Feb.	8.302	9.073	8.766	8.958	9.459	8.861
Mar.	8.217	9.111	8.603	8.902	9.405	8.832
Apr.	8.316	9.200	8.522	9.098	9.297	8.756
May	8.302	9.039	8.458	9.270	9.139	8.622
June	8.396	8.911	8.529	9.102	9.072	8.621
July	8.457	8.925	8.594	9.112	8.952	8.656
Aug.	8.504	8.822	8.657	9.159	9.011	
Sep.	8.591	8.952	8.819	9.215	9.100	
Oct.	8.748	8.927	8.806	9.451	9.152	
Nov.	8.964	8.877	8.892	9.478	9.225	
Dec.	9.126	8.784	8.982	9.546	9.229	
Year	8.515	8.989	8.713	9.186	9.211	

THE EFFECT OF WAR UPON THE STEEL INDUSTRY.

James H. Brookmire, President, The Brookmire Economic Service.

Mr. Andrew Carnegie is sometimes considered weak in principle, or at least inconsistent, in first reaping profits from the sale of steel fabricated for purposes of warfare, and then donating an Arbitration Palace to encourage and hasten the achievement of International Peace. This raises the question whether the steel business is reall benefited by war and preperations for war, or whether economic prosperity is better conserved and increased by disarmament and continued peace among the nations.

War Beneficial.

There is no doubt that belligerent activities result in a direct benefit to steel and iron makers in so far as the demand for battleships, coast defenses, new transportation facilities, etc., is increased. Sometimes, too, the spirit of a nation is aroused and political impediments of commercial expansion removed so that industrial prosperity for many years afterward is largely stimulated, or at least permitted, as a consequence of war. As a result of the many wars which England has carried on to acquire colonial possessions, moreover, markets have been opened up and procured for the products of British factories so that from a purely British standpoint the financial cost of war in some instances has probably been more than offset by commercial benefits of apparently permanent enjoyment, as in Canada, India and South Africa.

War Detrimental.

On the other hand, disregarding any benefits which may accrue to any particular country waging the war, from the standpoint of the commerce of the world at large wars are economically detrimental for two reasons: First, the enormous amounts of capital appropriated to belligerent purposes is largely wasted, being "non-productive" as contrasted with capital which is employed in agricultural or factory production; and this tends to reduce the actual supply of working capital which would otherwise be available for productive industrial uses; and second, the marked increase in the risk attending the investment of capital and the shipping of merchandise tends to restrict the movement of goods between nations and makes investors timid, so that the promoters of new industrial enterprises, instead of being able to float new security issues, must stand back and delay activities until a more settled political outlook encourages investors to bring their hoarded savings forth from stockings and chimneys.

Effects of the Balkan War.

The recent Balkan war is a case in point. There is no doubt that as a result of this war Roumania has received some slight and immediate benefit and it is probable that the coming benefits to Greece and Servia in future years will more than offset recent losses. It is difficult to imagine, however, how Austria, France, England and the United States will ever gain enough in the future to offset what they have lost and will lose as a result of this war.

Steel Trade Interrupted.

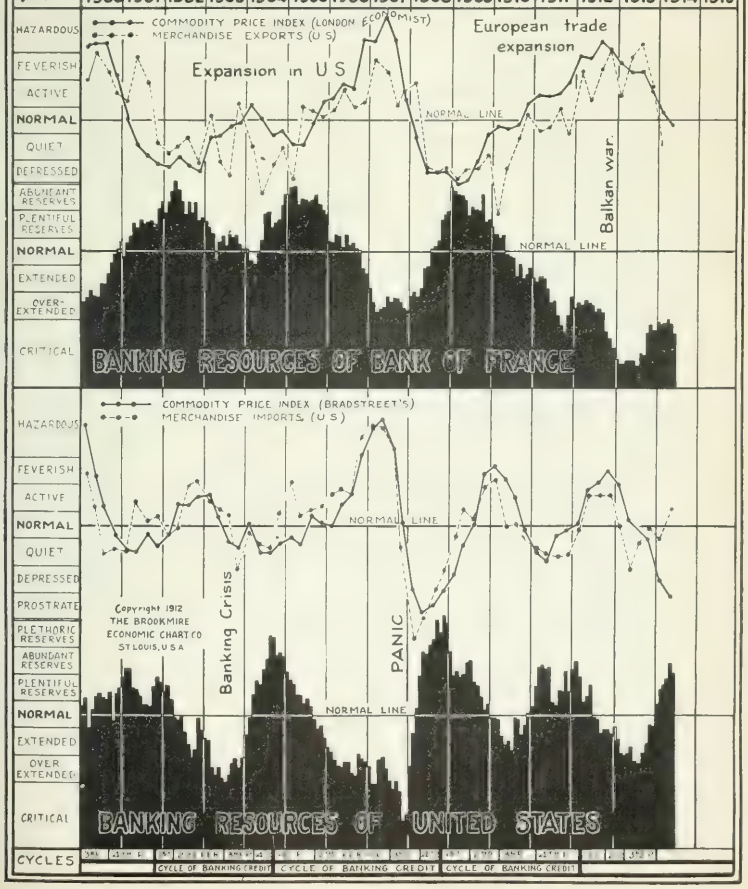
In the first place, the iron and steel trades of Austria was disastrously injured as a direct consequence of commercial instability in the Balkans. To a lesser degree the exportations of iron and steel from other countries were also affected. In the United States, however, the immediate injury concerned not so much the actual shipments of iron and steel as the check to industrial activity in the United States consequent upon the exhaustion of capital in Europe, for unless the American railroads can sell bonds in Europe they cannot buy steel and all kinds of equipment liberally in the United States (this point was covered fully in my article in the May number of **The Steel and Metal Digest.**)

Capital Supply Exhausted.

Taking things as they are, we find that European banks are becoming more and more loaded up with undigested securities, because while warring governments have attempted to sell about $500,000,000 worth of bonds and numerous private enterprises abroad have persistently brought forward new issues of securities, the capital of middle-class investors is either in hiding, fearing war, or already exhausted, the result being that bankers have been able to sell on an average only about 20 per cent of most underwritings during the past year.

the remaining 75 or 80 per cent being left as a burden on their credit resources. This is clearly reflected in the accompanying chart which shows that the Bank of France has been in a more or less critical condition ever since the Balkan war broke out.

Looking to the future, before we can expect extensive assistance from European capital, it will be necessary that foreign underwriters dispose of their present holdings of undigested securities, a slow and tedious process. Then as a result of economy and increased wealth production, investment capital will gradually accumulate in the hands of investors and savings banks throughout the world. This will be indicated when the Banking Index of the Bank of France rises above the normal line, for



that will mean that the banks have gotten rid of their undigested securities and that deposits are piling up.

The chart also shows that exports from the United States are declining rapidly and that imports are gradually increasing, owing to the fact that trade is depressed abroad and competition is unusually keen. And since it will be impossible for the European manufacturers of iron and steel to enjoy any sustained recovery until the banks abroad are in a position to finance business expansion—which means at least another year—we can expect to witness pretty keen competition from abroad for some time to come.

It is true that the notable business boom in Europe during 1909-1913 would probably have reached its crest and been followed by a certain measure of reaction by now even if the Balkan war had not occurred, but the acuteness of the present trade depression and critical over-extension of credit in Europe is directly traceable to war; and it is probably because the steel business is more injured by wars such as the Balkan one and it is benefited by orders for battleships and land defenses that Mr. Carnegie is in favor of peace international and eternal.

MANGANESE AND THE EUROPEAN WAR.

In the manufacture of iron and steel the United States is so self-contained as to be affected only in very limited degree by war in any foreign country, except as to its supply of ferromanganese or manganese ore. Our iron ore imports comprise only about four per cent. of our total consumption, and as they are drawn almost wholly from the American continent, except for about 15%, brought from Sweden, a European war does not affect our iron ore supply.

With manganese in metal or ore form the case is altogether different. The world's supply of manganese ore is drawn quite largely from Russia—chiefly Russia in Asia. There are other sources, chiefly India and Brazil, and the ferromanganese made in the United States uses a larger proportion of Brazilian and Indian manganese ores than is the case with the English and German ferromanganese.

A war in Europe would affect the ferromanganese situation in two ways. In the first place if Russia is at war the actual mining of Russian ore would be reduced. There was a large reduction in the ore supply at the time of the Russian-Japanese war, also at the time of the great strike in Russia.

In the second place, a general European war would operate to raise freights, perhaps to very high levels, and the United States would suffer through not having a merchant marine of its own. It is to be noted, however, that the United States Steel Corporation has some ocean going steamers and has of late imported much manganese ore in vessels which it controlled.

The Russian Ore.

We quote from the latest Geological Survey publication:

"During the year 1912 manganese was produced in three parts of Russia, the Caucasus (Chiaturi), South Russia (Nikopol), and the Urals. The manganese ores of the Ural region, because of their isolated situation, are not exported, but are used in metallurgical works in the Urals. Of the other two districts, 90% of the production of the Caucasus is exported and 10% is used in the South Russian iron works, whereas only 20% of the ores of the Nikopol district is exported and 80% is sent to neighboring iron works. The most notable feature of the Russian manganese industry in 1912 was the increase in shipments to the United States. Up to 1899 England was the principal importer of Chiaturi manganese ores, but now does not take over 10%. Recently the greater portion of the ore shipped from this district has gone to Germany and during 1912 almost half of the Caucasus manganese ore was imported to that country by way of the ports of Holland.

"The total production of the Ural region is not large, the average annual production from 1899 to 1908 being 4,190 tons, 0.7% of the total of the Empire. The year 1912 was a record one for Russian manganese mining, the production amounting to about 1,000,000 tons."

Consumption of Spiegeleisen and Ferromanganese.

Spiegeleisen normally runs 18% to 22%, with an average of 20% (Tiemann). Ferromanganese is usually guaranteed 80% in manganese. In the manufacture of ordinary steel a manganese addition is necessary, to purify the bath rather than for the purpose of leaving metallic manganese in the steel. In the Bessemer process the addition of the manganese alloy performs an additional function, that of recarburization. Ferromanganese normally runs a trifle under 7% carbon while spiegeleisen contains a trifle over 5% carbon. In making soft steel—low carbon—the requisite carbon is obtained by adding ferromanganese, but with rail steel a ferromanganese addition sufficient to provide the necessary carbon would provide entirely too much manganese, hence in making rail steel by the Bessemer process spiegeleisen is used instead.

The consumption of spiegeleisen in the United States is in direct proportion to the production of Bessemer rails, and has therefore ranged from slightly over 250,000 tons a year in 1901-2-3, the last years in which there was practically no production of open-hearth rails, down to a trifle over 100,000 tons in the past two years, in which years the production of Bessemer rails averaged less than half that of the open-hearth tonnage. For a dozen years the tonnage of spiegeleisen consumed has been between 9% and 10% of the tonnage of Bessemer rails produced.

Ferromanganese is used in the production of practically all steel except Bessemer rail steel. In 1901-2-3 the consumption of ferromanganese averaged .79% of the tonnage of all steel ingots and castings, exclusive of Bessemer steel ingots used for rail manufacture. In 1911-2-3 the corresponding proportion was .75%.

At the present time steel production is running at the rate of about 25,000,000 tons of ingots and castings a year, about a million tons of this being in Bessemer rail steel. Hence a ferromanganese is needed at the present time at the rate of about ¾ of one per cent of 24,000,000 tons, or at the rate of about 180,000 gross tons a year.

Supplies of the Metal.

Spiegeleisen used to be imported to a considerable extent, a high point being the 22,016 tons imported in 1903, but in 1912 the imports had dropped to 1,015 tons, and in 1913 no imports at all were reported. The United States has been able to make its spiegeleisen, and to do so without importing ore. A large part of the production is from zinc residuum. Production in the United States was 96,346 tons in 1912 and 110,338 tons in 1913. More could have been made if needed.

The following table gives the production, imports and approximate consumption of ferromanganese in the United States, as reported by the Bureau of Statistics of the Institute:

	Production	Imports	Consumption
1901	59,639	20,750	80,389
1902	44,526	50,388	94,914
1903	35,961	41,518	77,479
1904	57,076	21,814	78,890
1905	62,186	52,841	115,027
1906	55,520	84,359	139,879
1907	55,918	87,400	143,318
1908	40,642	44,624	85,266
1909	82,209	88,934	171,143
1910	71,376	114,278	185,654
1911	74,482	80,263	154,745
1912	125,378	99,137	224,515
1913	119,496	120,000*	*240,000

*Estimated; imports reported: first quarter, 33,957 tons; second, 37,228 tons; third, 28,567 tons; fourth quarter estimated at 20,000 tons.

The consumption as indicated above has fluctuated quite uniformly with the production of steel. The relation between production and imports has been quite interesting. In years of relatively full employment of our blast furnaces the domestic production has dropped, because it paid better to run the furnaces on pig iron. When there was ample furnace capacity, on the other hand, it paid to make ferromanganese. Thus, in 1904, an "off" year, the domestic production was more than double the imports, while in 1906 and 1907, very busy years, the domestic production was less than two-thirds of the imports. In the past six years the production and imports have practically balanced.

The supply of ferromanganese in 1913 appears to have been slightly in excess of the requirements, as the production of steel ingots and castings was substantially the same as in 1912, whereas the supply of ferromanganese appears to have increased over 15,000 tons. Quite likely there were unusually large stocks of the metal on January 1st.

Sources of Ore Imports.

Practically all the ferromanganese made in the United States is from imported ore. The import statistics do not separate manganese ore from oxide of manganese and there is consumption of the material apart from the manufacture of ferromanganese. There are no precise data to show the distribution. In recent years the production of ferromanganese has been about 40% as heavy as the imports of ore and oxide.

The imports into the United States have been as follows in fiscal years ended June 30, in gross tons:

	1909.	1910.	1911.	1912.	1913.
Europe:					
Belgium	933	795	1,494	673	...
France	9,033	4,528	3,398	4,233	416
Germany	2,077	4,376	4,919	2,431	2,979
Netherlands	521	815	169	1,015	...
Russia in Europe	1,093	50	710	5,450	13,636
United Kingdom.	2,805	2,359	935	750	202
North America:					
Canada	493	353	31	56	5
Cuba	3,019	2	...	...	...
South America:					
Brazil	24,050	45,650	57,700	63,680	71,300
Colombia	...	...	2	...	...
Asia:					
East Indies—					
British—					
British India	117,533	138,825	130,755	98,091	167,319
Other British.	...	...	...	...	5,600
Dutch	7	...	...	...	...
Japan	2,373	1,380	7	...	3
Russia in Asia.	1,121	37,904	9,091	21,580	125,736
Total	165,061	237,037	209,211	197,959	387,196

The imports showing origin are a available only by fiscal years. Total imports have been as follows:

Imports of Manganese Ore and Oxide, Calendar Years.

1906	221,260
1907	209,021
1908	178,203
1909	212,765
1910	242,318
1911	176,852
1912	300,661
1913	345,060

	1913.	1914.
January	55,543	24,135
February	41,553	15,520
March	45,642	18,992
April	20,631	30,478
May	18,901	23,497
June	8,697	.....
July	36,794	.....
July	10,714	.....
September	19,629	.....
October	30,084	.....
November	16,159	.....
December	40,743	.....
Total	345,060	112,622

The domestic production of manganese ore is negligible. In 1901 and preceding years it ran somewhat more than 10,000 tons a year, but lately it has run only 1,000 to 2,000 tons a year.

Position and Prospects.

There are fairly large supplies of ferromanganese in the United States at the moment, though at no time are really large stocks carried. Consumers are quite well covered through the year with respect to contracts and the question is not so much of their being able to buy as of the sellers being able to deliver what they have sold.

Of manganese ore there are large stocks in the country. The United States Steel Corporation in particular has accumulated stocks, arising from the fact that last year it found it desirable to bring ore from South America in vesesls which had taken its manufactured products to that country, and piles of manganese ore are to be seen at the furnaces at which it makes ferromanganese.

The United States is fortunate in that it draws its supplies of ore chiefly from points which would not be affected by a general European war. In the fiscal year 1913 the most important source was British India, the next being Russia in Asia, while Brazil came third.

STEEL PRODUCTION STATISTICS.

The Bureau of Statistics of the American Iron and Steel Institute has issued the full statistics of production of steel ingots and castings in 1913. Figures given below refer to gross tons of 2,240 lbs.

Steel Ingots and Castings.

	O. H. Basic.	O. H. Acid.	O. H. Total.	Bessemer.	Crucible.	Uncl.	Total steel.
1897	1,056,043	552,628	1,608,671	5,475,315	69,959	3,012	7,156,957
1898	1,569,412	660,880	2,230,292	6,609,017	89,747	3,801	8,932,857
1899	2,080,426	866,890	2,947,316	7,586,354	101,213	4,974	10,639,857
1900	2,545,091	853,044	3,398,135	6,684,770	100,562	4,862	10,188,329
1901	3,618,993	1,037,316	4,656,309	8,713,302	98,513	5,471	13,473,595
1902	4,496,533	1,191,196	5,687,729	9,138,363	112,772	8,386	14,947,350
1903	4,734,913	1,094,998	5,829,911	8,592,829	102,434	9,804	14,534,978
1904	5,106,367	801,799	5,908,166	7,859,140	83,391	9,190	13,859,887
1905	7,815,728	1,155,648	8,971,376	10,941,375	102,233	8,963	20,023,947
1906	9,658,760	1,321,653	10,980,413	12,275,830	127,513	14,980	23,398,136
1907	10,279,315	1,270,421	11,549,736	11,667,549	131,234	14,075	23,362,594
1908	7,140,425	696,304	7,836,729	6,116,755	63,631	6,132	14,023,247
1909	13,417,472	1,076,464	14,493,936	9,330,783	107,355	22,947	23,955,021
1910	15,292,329	1,212,180	16,504,509	9,412,772	122,303	55,335	26,094,919
1911	14,685,932	912,718	15,598,650	7,947,854	97,653	31,949	23,676,106
1913	20,641,626	1,255,305	21,599,931	10,327,901	121,517	21,162	31,251,303
1913	20,344,626	1,255,305	21,599,931	9,545,706	121,226	32,011	31,300,874

Note.—"Unclassified" includes electric steel: 1909, 13,762 tons; 1910, 52,141 tons.

Steel Castings.

	Basic. O. H.	Acid. O. H.	Total. O. H.	Bessemer.	Crucible.	Uncl.	Total.
1898	28,460	92,127	120,587	3,539	4,235	3,576	131,937
1899	39,689	130,040	169,729	3,939	3,500	3,944	181,112
1900	42,644	134,847	177,491	6,467	3,989	4,856	192,803
1901	94,941	206,681	301,622	6,764	3,927	5,257	317,570
1902	112,404	255,475	367,879	12,548	4,955	5,553	390,935
1903	134,879	265,469	400,348	18,099	5,409	6,409	430,265
1904	98,919	203,915	302,834	16,051	4,308	7,018	330,211
1905	206,159	320,381	526,540	22,103	5,733	6,391	560,767
1906	313,548	406,343	719,891	32,601	10,343	10,870	773,705
1907	366,476	380,049	746,525	33,273	10,233	13,086	803,117
1908	155,005	156,772	311,777	20,559	8,271	5,613	346,220
1909	306,005	295,035	601,040	33,814	12,683	8,399	656,242
1910	433,976	429,375	863,351	58,335	14,632	3,194	940,832
1911	266,626	304,565	571,191	57,101	14,030	2,427	646,627
1912	443,998	426,850	870,848	68,750	20,550	2,311	966,621
1913	460,161	450,055	910,216	80,506	17,571	3,244	1,020,744

Alloy Steel.

(Steel treated with ferro-vanadium, ferro-titanium, nickel, etc.)

	Ingots.	Castings.	Total.
Bessemer steel ...	53,751	21,173	74,924
O. H. steel—acid.	153,140	60,264	213,404
O. H. steel—basic	382,437	4,049	386,486
Crucible steel	25,281	2,998	28,279
Elec. and misc. steel	10,821	443	11,264
Total for 1913..	625,430	88,927	714,357
Total for 1912..	689,392	103,109	792,501
Total for 1911..	425,169	56,290	481,459
Total for 1910..	538,462	29,357	567,819
Total for 1909..	158,978	23,002	181,980

Electric Steel.

	Ingots.	Castings.	Total.
1909	13,456	306	13,762
1910	50,821	1,320	52,141
1911	27,227	1,878	29,105
1912	14,147	4,162	18,309
1913	20,973	9,207	30,180

Duplex Steel.

Included in the 20,344,626 tons of basic open-hearth steel ingots and castings produced in 1913 are 2,210,718 tons of duplex steel ingots and castings which were made from metal partly purified in Bessemer converters and finally purified in basic open-hearth steel furnaces, against 1,438,654 tons in 1912, an increase of 772,064 tons, or over 53.6 per cent. In 1913 duplex steel ingots and castings were produced by nine works in five States, as follows: New York, one; Pennsylvania, five; Maryland, one; Alabama, one; and Illinois, one; against seven works in four States in 1912, namely, four in Pennsylvania, and one each in Maryland, Alabama, and Illinois. Acid open-hearth steel was not produced by the duplex process in 1912 or 1913. Similar statistics for 1911 were not collected.

PLATE, SHEET AND TIN PLATE PRODUCTION.

Statistics gathered by the Bureau of Statistics of the American Iron and Steel Institute.

Gross tons.	Iron.	Steel.	Total.
Universal plates, including flats or bars over 6 in. wide:			
¼ in. and over in thickness	1,565	1,108,509	1,110,074
Under ¼ in. thick	....	48,342	48,342
Total universal plates	1,565	1,156,851	1,158,416
Sheared plates, rolled on single stands of rolls:			
¼ in. and over in thickness	1,852	1,179,372	1,181,224
Under ¼ in. thick	732	213,671	214,403
Total	2,584	1,393,043	1,395,627
Sheared plates, roughed and finished on separate stands:			
¼ in. and over in thickness	450	250,580	251,030
Under ¼ in. thick	450	197,247	197,697
Total	900	447,827	448,727
Black sheets, made on either sheet or jobbing mills:			
No. 12 gauge and thicker	16,994	235,343	252,337
No. 13 gauge and thinner	40,577	1,424,724	1,465,301
Total black sheets	57,571	1,660,067	1,717,638
Black plates, including black plates for tinning, and also all other black plate specialties rolled on tin mills	2,109	1,028,520	1,030,629
Grand total of plates and sheets	64,729	5,686,308	5,751,037

Tin Plates—Pounds.

	Coke tin plates	Charcoal tin plates.	Total pounds.
Pennsylvania	1,027,081	15,704,000	1,042,785,000
Maryland and West Virginia	267,005,000	24,353,000	291,358,000
Ohio, Indiana, Illinois and Michigan	368,062	5,981,000	374,043,000
Total	*1,662,148,000	46,038,000	1,708,186,000

* Include 5,728,000 lbs. which were formed or stamped from black plates, or sheets, by companies which manufacture tin plates, and tinned after the completion of the forming or stamping process.

Tin and Terne Plates—Pounds.

	Iron.	Steel.	Total.	Terne plates — Steel tin plates.	Grand total.
1908 ...	6,560,500	147,618,500	154,179,000	1,048,806,000	1,203,075,000
1909 ...	8,054,900	182,875,100	190,930,000	1,179,858,000	1,370,788,000
1910 ...	5,765,000	162,419,000	168,184,000	1,450,821,000	1,619,005,000
1911	7,720,000	150,721,000	158,441,000	1,597,629,000	1,756,070,000
1912	11,259,000	180,137,000	191,396,000	1,965,659,000	2,157,055,000
1913	6,433,000	130,511,000	136,944,000	*1,708,186,000	1,845,130,000

* Include about 1,000 lbs. of iron tin plates. Iron tin plates were not reported from 1908 to 1912 inclusive.

Tin and Terne Plate Exports—Pounds.

Countries—Pounds.	1909	1910.	1911.	1912.	1913.
Canada	17,551,743	24,946,514	64,190,650	105,492,978	100,346,247
England	230	1,269	.....	668,310	.....
Mexico	849,782	694,529	4,117,235	5,311,750	2,377,687
Cuba	775,423	401,438	3,190,173	4,563,785	5,590,089
Argentina	.....	86,011	5,753,920	9,987,329	2,065,581
Brazil	72,365	132,173	2,775,208	5,986,914	4,453,963
Chile	14,102	129,241	2,537,966	3,252,254	5,680,684
China	501,194	.....	19,705,610	13,166,327	1,928,175
British India	.....	8,994	15,531,702	8,737,493	62,591
Hongkong	351,432	.....	7,896,380	7,144,481	894,399
Japan	3,140	.....	6,948,568	6,549,668	509,245
Other countries ..	774,226	1,476,911	4,846,829	12,133,630	5,590,642
Total	20,893,768	27,877,080	137,494,241	182,994,919	129,499,303

Black Plates for Tinning—Gross Tons.

Years.	Iron.	Steel.	Total.
1904	2,981	469,588	472,569
1905	3,152	504,435	507,587
1906	5,666	570,413	576,079
1907	3,161	500,911	504,072
1908	2,954	510,817	513,771
1909	4,261	602,221	606,482
1910	2,893	709,244	712,137
1911	3,515	792,083	795,598
1912	5,378	976,819	982,197
1913	2,779	824,487	827,266

Plates, Sheets and Black Plates—Gr. Tons.

	Plates, 12 down.	*Sheets, 13 up.	†Black plates.	Total sheets and black plates
1905.	2,041,206	983,437	507,587	1,491,024
1906.	2,531,552	1,074,525	576,079	1,650,604
1907.	2,660,060	1,084,700	504,072	1,588,772
1908.	1,271,021	864,901	513,771	1,378,672
1909.	2,379,098	1,248,404	606,482	1,854,886
1910.	2,807,728	1,435,619	712,137	2,147,756
1911.	2,334,341	1,358,110	795,598	2,153,708
1912.	3,035,200	1,857,683	982,197	2,839,880
1913.	3,255,107	1,668,664	827,266	2,495,930

* Including tin mill black

Tin Plates and Black Plates—Gross tons.

	Tin and Terne Plate.	Black Plate.
1891	999	3,919
1892	18,803	18,071
1893	55,182	37,997
1894	74,260	56,159
1895	113,666	124,252
1896	160,362	163,924
1897	256,598	271,886
1898	326,915	345,254
1899	369,875	375,000
1900	302,665	315,009
1901	399,291	398,026
1902	360,000	365,743
1903	480,000	490,652
1904	458,000	472,569
1905	496,500	507,587
1906	577,562	576,079
1907	514,775	504,072
1908	537,087	513,771
1909	611,959	606,482
1910	722,770	712,137
1911	783,960	795,598
1912	962,971	982,197
1913	824,519	827,266

† For tinning only.

TOPICAL TALKS ON IRON.

XVII. Ingot Iron.

A much advertised material known commonly by the generic term of "ingot iron" is a very new product, the principles in the manufacture of which are perhaps not generally understood. Tiemen's extremely valuable compendium of definitions, though in general entirely adequate, was published in 1910, and has the following reference: "Ingot iron (rare)—Soft steel cast in ingots", which merely shows that for this new product a term was appropriated which was not in general use for any other substance in the iron and steel industry.

The feature of ingot iron, as now known in commerce, is that it is practically pure iron. Cast iron contains about 5 per cent of "impurities" while soft steel contains somewhat less than .50 per cent of other elements, and wrought iron, except for slag, usually contains less than .25 per cent of other elements. In ingot iron the other elements are limited to a few hundredths of one per cent.

The important feature of ingot iron is its resistance to corrosion, the manufacturers claiming that this is due to its great purity. This subject, however, cannot be discussed with any degree of confidence, because process of corrosion is itself a subject of debate, there being three general theories, one being that corrosion is due to a chemical process in which the presence of carbonic acid is necessary, another, known as the "peroxide theory" that corrosion is due to the presence in the metal of traces of peroxide of hydrogen, while the third and perhaps most commonly known is the electrolytic theory. Disregarding, of course, such corrosion as is well known to occur when a current from an extraneous source passes through the metal, and also cases in which a foreign body may form one element of a galvanic couple, the electrolytic theory of corrosion is that steel is not homogeneous, whereby some parts of the steel surface become anodes and other parts cathodes, moisture acting as an electrolyte and forming a short-circuited galvanic couple. The advocates of this theory maintain that manganese is the element which occasions the lack of homogeneity. Manganese is practically absent from charcoal iron, wrought iron and ingot iron.

Neither the commercial merits of ingot iron nor the charge made in some quarters that it contains copper and that the copper contributes to the relative resistance to corrosion, can properly be discussed in a talk like this. Of more interest to the reader, doubtless, would be a reference to the process of manufacture.

The manufacture of ordinary steel by the Bessemer or open-hearth process consists chiefly in the oxidation of the impurities existing in the pig iron. As this oxidation proceeds some iron is also oxidized, and the oxidation cannot be pursued beyond a certain point. Even at that point, however, the iron is oxidized to a slight extent, and ferromanganese is added in order to eliminate that oxide, through the affinity of manganese for oxygen being greater than the affinity of iron for oxygen. The manganese also removes free oxygen, and to make this elimination adequate there must remain in the steel about .30 per cent manganese.

In the ingot iron process the elimination of impurities by oxidation is carried to the extreme, irrespective of the fact that the material is at the same time overoxidized. The oxides are then reduced by ferrosilicon, and the gasses are removed by an aluminum addition, the latter addition being made in the mold. There are other details in the process, the material as poured from the furnace, for instance, being much hotter than in the case of ordinary steel.

IRON AND STEEL.

THE SITUATION.

The entire alignment of the iron and steel market has been broken up by the European war and everyone is in doubt as to the effects, both over the trade of the next few weeks and also over the trade of the next few years. It is our duty to make our regularly monthly presentment of the course of trade in the past month, but it is needless to point out that such a review loses practically all its usual significance as a suggestion of what may be expected in the future.

Production of pig iron in July was almost as large as in June, and the rate of production at the close of the month was a trifle larger than the average of the month, being some 23,600,000 tons a year.

Productions and shipments of steel showed if anything a slight increase in July over June, and this notwithstanding the fact that a few mills were closed for portions of July making repairs.

The booking of actual shipping orders in July was substantially as heavy as in June, thus making a very favorable comparison with May and April. The booking of forward business showed a large relative increase from June to July, but still the volume in July was not really large, the mills being very reserved about accepting forward business, and in most cases quoting advances of $1 to $2 a ton over the prompt prices.

Steel prices showed a slight advancing tendency in July. There was a general advance in wire products of a dollar a ton, effective July 20th. At the same time the mills began advancing bars, plates and shapes and within a few days the market became quotable at 1.15c minimum. All these advances were made partly with the view to stimulating specifications on old contracts.

Trends in the Trade.

The war influence overshadows everything else in determining trends in the iron and steel trade. The situation is so fresh, and so absolutely novel, that the best judges are conservative in endeavoring to reach any conclusions, and particularly so by reason of the fact that the immediate effects of the European war may be precisely opposite to the effects which will be felt in time.

Immediate effects in material movements have been the practical cessation of export shipments and a general tendency on the part of buyers to be conservative in taking in material and making fresh commitments. Immediate effects upon the minds of sellers have been in the direction of making them very conservative as to making sales, all transactions being scrutinized carefully, and prices tending to advance. The war promises a severe shortage of certain raw materials, such as ferromanganese and dolomite, and threatens a shortage of labor. In the circumstances the steel manufacturers feel that prices should advance $1 to $2 a ton in order to protect themselves against the possibilities of the immediate future.

The greatest long range effect, of course, is with respect to the export trade. The United States has been exporting iron and steel at the rate of about 2,500,000 tons annually, while the remainder of the demand of neutral markets is about 10,000,000 tons and has been supplied by England, Germany France and Belgium. These countries being at war with each other can hardly export at all, and indeed within 24 hours of her declaration of war England placed an embargo upon the exportation of all metals. The consuming power of neutral markets will naturally be reduced, when Europe is no longer able to finance anything except war expenditures, but the proportions of consumption in neutral markets which represents the ordinary activities of the people and consumption which represents financing abroad, cannot possibly be gauged at this time. By the most conservative estimates the United States is bound to be called upon for quantities of iron and steel enormous by comparison with the tonnage hitherto exported, and of course at satisfactory prices.

The Future.

A general advance in crude and finished steel products of $1 to $2 a ton is practically certain to characterize the first half of August, and indeed at this writing (August 7) some advances have already occurred. No material increase in production is to be expected in August, and it will be an indication of great fundamental strength in the iron and steel situation if production and shipments are maintained

IRON AND STEEL.

[illegible] August at the July rate, for the immediate effect of the war is to slow down deliveries no matter how large tonnages are promised for the future.

The decision in the famous rate case of the eastern railroads was rendered Saturday, August 1st, and passed almost without notice. By an irony of fate, an early prediction, that the Commission would hand down its decision at some time when the stock market was closed, was verified in striking manner. The decision is less favorable to the railroads than was generally expected, but we take issue with those who measure its favorableness by the amount of increased revenue to the railroads which the decision promises. The common view is that the decision will give the railroads $9,000,000 to $15,000,000 more annual revenue, when about $50,000,000 had been computed as being represented in the full demand. Our view is that the railroads were not contending so much for $50,000,000 a year as they were contending for a principle, to have the Commission recognize that there may be conditions, as to insufficient revenue, which should dictate rate advances. The commission has plainly and fully recognized this principle as to the lines west of Buffalo and Pittsburgh in the general eastern district, and as to the lines east it recognizes the principle also, in pointing out means whereby revenues may be increased through the establishment of special charges. The admission of this principle, we think, is of much more importance to the railroads than would be even a very large fraction of $50,000,000 added to their annual revenues at this particular time.

The railroads are confronted with serious questions as to whether the large crops can be moved as usual and also with serious questions of financing, hence it would be idle to expect the rate decision to be followed by the placing of any large orders.

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered).

	Bessemer, Valley	Basic, Valley	No.2 fdy, Valley	Basic Phila.	No. 2X fdy, Phila.	No. 2 fdy Buffalo.	No. 2 fdy Cleveland.	No. 2 fdy Chicago.	No. 2 fdy Birmingham.	Ferro-manganese.*	Furnace coke†
1913—											
Jan. ..	17.25	16.50	17.50	18.00	18.49	17.50	17.75	18.48	13.72	65.00	3.85
Feb. .	17.25	16.43	17.12	17.75	18.23	17.22	17.44	17.87	13.46	65.00	2.60
Mar. ..	17.20	16.14	16.60	17.50	17.81	16.79	16.75	17.75	13.04	64.00	2.47
April	17.00	15.87	15.66	17.00	17.49	15.96	15.41	17.60	12.60	61.00	2.20
May ..	17.00	15.25	14.73	16.50	16.77	15.58	15.56	16.67	11.74	61.00	2.15
June ..	16.34	14.50	14.18	16.50	16.26	14.43	14.95	16.24	10.89	61.00	2.20
July .	15.86	14.40	13.88	15.90	15.66	14.01	14.68	15.38	10.50	59.00	2.50
Aug. ..	15.63	14.09	13.94	15.25	15.56	14.20	14.50	15.44	10.85	56.70	2.50
Sept...	15.75	14.00	14.00	15.25	15.97	14.25	14.55	15.50	11.20	54.50	2.37
Oct. ..	15.67	13.97	13.83	15.25	15.94	14.25	14.73	15.50	11.48	50.28	2.10
Nov...	15.23	13.28	13.57	15.13	15.61	13.96	14.35	15.43	10.80	50.00	1.88
Dec. .	14.95	12.83	13.38	14.75	14.98	13.32	13.76	14.83	10.50	47.00	1.77
Year ..	16.26	14.77	14.87	16.23	16.56	15.12	15.37	16.39	11.73	57.87	2.38
1914—											
Jan. ..	14.06	12.51	13.00	14.25	14.69	12.76	13.30	14.35	10.63	43.42	1.88
Feb. ..	14.13	13.21	13.21	14.00	14.88	13.02	13.56	14.46	10.52	38.33	1.90
Mar. ..	14.20	13.05	13.25	14.10	15.00	13.38	13.75	14.75	10.75	38.40	1.92
April .	14.00	13.00	13.25	14.25	15.00	13.75	14.21	14.75	10.52	38.00	1.90
May ..	14.00	13.00	13.17	14.10	14.91	13.57	14.25	14.68	10.50	38.00	1.83
June ..	14.00	13.00	13.00	14.00	14.51	13.01	14.35	14.21	10.29	38.00	1.80
July	14.00	13.00	13.00	14.00	14.40	13.00	13.81	14.38	10.06	37.50	1.75

Contract price, f.o.b. Baltimore; *[illegible] pt. f.o.b. Connellsville ovens.

IRON AND STEEL.

As to its effect upon business in general, the rate decision has proved a complete fiasco.

Pig Iron.

July sales of pig iron were almost as large as those in June, but still were by no means satisfactory. Buyers have been covering quite generally, but have been taking smaller tonnages than normal. Production and consumption appear to be about balanced, but this has been said before, only to be followed by additional furnaces going out of blast. It is a fact, however, that in July a few idle furnaces considered the question of going into blast and accumulating some stocks, taking advantage of cheap ore and cheap coke. Financial conditions brought on by the war have of course instantly disposed of all such projects.

Early in July southern iron became quotable at $10, Birmingham, a drop of 25 cents. Cleveland scored a decline of 50 cents, though this was largely nominal, since for weeks the quoted market delivered Cleveland was fictitious compared with prices Cleveland furnaces were quietly naming to removed points. At the middle of the month Chicago furnaces firmed up 25 cents, while soon afterwards the eastern market dropped 25 cents. The eastern market is now likely to stiffen materially, with the removal of all possibility of pig iron imports.

Changes in the pig iron market as a whole are shown very accurately by the following statement of fluctuations in our composite pig iron:

	On first of month.	Change during month.
January (1913)	$17.450	—17.5c
February	17.275	—33.0
March	16.945	—32.0
April	16.621	—61.0
May	16.015	—76.5
June	15.250	—55.0
July	14.700	—25.0
August	14.450	+17.5

FINISHED STEEL PRICES.

(Averaged from daily quotations, f.o.b. Pittsburgh.)

	Shapes.	Plates.	Bars.	Pipe.	Wire.	Wire Nails.	Cut Nails.	Sheets Black.	Sheets Galv.	Tin plate.	Composite Finished steel.
1913—											
January	1.50	1.50	1.40	80	1.55	1.75	1.70	2.32	3.47	3.60	1.7737
February ..	1.45	1.45	1.40	80	1.55	1.75	1.70	2.35	3.50	3.60	1.7625
March	1.45	1.45	1.40	80	1.56	1.76	1.70	2.35	3.50	3.60	1.7646
April	1.45	1.45	1.40	79½	1.60	1.80	1.70	2.35	3.45	3.60	1.7743
May	1.45	1.45	1.40	79½	1.60	1.80	1.70	2.35	3.40	3.60	1.7786
June	1.45	1.45	1.40	79	1.55	1.75	1.70	2.29	3.38	3.60	1.7719
July	1.45	1.45	1.40	79	1.50	1.70	1.70	2.25	3.31	3.60	1.7600
August	1.45	1.44	1.40	79¾	1.47	1.67	1.60	2.20	3.25	3.60	1.7400
September..	1.40	1.40	1.40	80	1.43	1.63	1.60	2.12	3.17	3.60	1.7093
October ...	1.39	1.36	1.39	80	1.40	1.60	1.60	2.04	3.08	3.50	1.6779
November	1.34	1.29	1.30	80	1.40	1.60	1.60	1.98	2.98	3.40	1.6203
December ..	1.24	1.21	1.22	80	1.35	1.55	1.60	1.90	2.90	3.40	1.5558
Year	1.42	1.41	1.38	79¾	1.50	1.70	1.66	2.21	3.28	3.56	1.7241
1914—											
January	1.20	1.20	1.20	80	1.33	1.53	1.60	1.86	2.86	3.40	1.5394
February ..	1.25	1.21	1.22	79½	1.40	1.60	1.60	1.95	2.95	3.40	1.5794
March	1.21	1.18	1.20	79½	1.40	1.60	1.60	1.95	2.95	3.40	1.5638
April	1.18	1.15	1.15	79¼	1.40	1.60	1.60	1.90	2.89	3.39	1.5337
May	1.15	1.14	1.14	80	1.38	1.58	1.60	1.85	2.79	3.30	1.5078
June	1.12	1.10	1.12	80	1.30	1.50	1.58	1.81	2.75	3.30	1.4750
July	1.12	1.11	1.12	80	1.32	1.52	1.55	1.80	2.75	3.30	1.4805

COMPARISON OF METAL PRICES.

	Range for 1912.		Range for 1913.		Range for 1914.		Closing
Pig Iron.	High.	Low.	High.	Low.	High.	Low.	July 31,
Bessemer, valley	17.25	14.00	17.25	14.25	14.25	14.00	14.00
Basic, valley	16.50	12.25	16.50	12.50	13.25	12.50	13.00
No. 2 foundry, valley	18.00	13.00	17.50	13.00	13.25	13.00	13.00
No. 2X foundry, Philadelphia	18.50	14.75	18.50	14.50	15.00	14.25	14.25
No. 2 foundry, Cleveland	17.75	13.25	17.75	13.50	14.25	13.25	13.75
No. 2X foundry, Buffalo	17.25	13.50	18.00	13.00	13.75	12.50	13.00
No. 2 foundry, Chicago	18 00	14.50	18.00	14.00	14.75	14.00	14.50
No. 2 Southern, Birmingham	14.00	9.75	14.00	10.50	10.75	10.00	10.00
Scrap Iron and Steel.							
Melting steel, Pittsburgh	16.25	12.50	15.00	10.75	12.00	11.00	11.75
Heavy melting steel, Chicago	14.00	10.75	13.25	9.00	11.00	9.00	9.75
No. 1 R.R. wrought, Pittsburgh	16.25	13.00	15.75	11.50	12.75	11.50	11.75
No. 1 cast, Pittsburgh	15.25	12.35	15.00	11.50	12.25	11.50	12.25
Heavy steel scrap, Philadelphia	17.00	11.75	14.75	9.75	11.25	9.75	10.60
Iron and Steel Products.							
Bessemer rails, mill	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Iron bars, Pittsburgh	1.65	1.25	1.65	1.35	1.35	1.25	1.25
Iron bars, Philadelphia	1.67½	1.22	1.67½	1.22½	1.27½	1.17½	1.17½
Steel bars, Pittsburgh	1.40	1.10	1.40	1.20	1.20	1.10	1.15
Tank plates, Pittsburgh	1.50	1.10	1.50	1.20	1.20	1.10	1.15
Structural shapes, Pittsburgh.	1.50	1.10	1.50	1.20	1.25	1.10	1.15
Grooved steel skelp, Pittsburgh	1.45	1.15	1.45	1.15	1.20	1.15	1.15
Black sheets, Pittsburgh	2.25	1.80	2.35	1.80	1.95	1.80	1.80
Galvanized sheets, Pittsburgh	3.40	2.80	3.50	2.80	2.95	2.75	2.75
Tin plate, Pittsburgh	3.60	3.30	3.60	3.40	3.40	3.30	3.30
Cut nails, Pittsburgh	1.70	1.50	1.70	1.60	1.60	1.55	1.55
Wire nails, Pittsburgh	1.75	1.55	1.80	1.50	1.60	1.50	1.55
Steel pipe, Pittsburgh	79%	81%	79%	80%	79½%	80%	80%
Connellsville Coke at ovens.							
Prompt furnace	4.25	1.80	4.25	1.75	2.00	1.75	1.75
Prompt foundry	4.50	1.90	4.50	2.40	2.50	2.30	2.30
Metals—New York.							
Straits tin	51.05	42.05	50.70	36.75	41.12½	30.00	33.50
Lake copper	17.80	14.15	17.00	14.50	15.50	13.00	13.12½
Electrolytic copper	17.75	13.95	16.87½	14.12½	14.87½	12.75	12.87½
Casting copper	17.65	13.75	16.62½	13.87½	14.65	12.62½	12.75
Sheet copper	23.90	19.00	22.00	19.75	20.25	18.50	18.50
Lead (Trust price)	5.10	4.00	4.75	4.00	4.15	3 80	3.90
Spelter	7.65	6.45	5.65	5.10	5.50	4.95	5.05
Cooksons antimony	10.50	7.12	9.00	7.25	7.37½	7.00	7.20
Aluminum 98-99%	28.00	18.50	27.12½	18.50	19.00	17.37½	17.37½
Silver	64⅛	54¼	62⅛	56⅛	59¼	52¼	52¼
St. Louis.							
Lead	5.02½	3.90	4.72½	3.85	4.10	3.65	3.72½
Spelter	7.50	6.25	5.85	4.95	5.35	4.80	4.85
Sheet zinc (f.o.b. smelter)	9.00	8.00	9.00	7.00	7.50	7.00	7.00
London.	£	£	£	£	£	£	£
Standard tin, prompts	233	183¾	232	166½	188	132	132
Standard copper, prompts	80 1/8	60 1/8	77	61¾	66¾	56	56
Lead	23¾	15 7/16	21⅛	15⅛	20⅜	18	18¾
Spelter	27⅝	25	26¼	20¼	21¾	21¼	21¾
Silver	29⅛d	25⅝d	25⅝d	25⅝d	27¼	23¼d	23¼d

COMPARISON OF SECURITY PRICES.

Railroads.	Range for 1912. High.	Low.	Range for 1913. High.	Low.	Range for 1914. High.	Low.	Closing. July 30.
Atchison Top. & Santa Fe...	111¾	103¼	106⅝	90¼	100⅝	89½	89⅝
Atch. Top. & Santa Fe. pfd.	104¼	101⅜	102½	96	101¾	97¼	97¾
Baltimore & Ohio	111⅞	101¼	106⅝	90⅝	98⅝	72	72
Canadian Pacific	283	226½	266¾	204	220½	156⅜	157½
Chesapeake & Ohio	85¼	68¼	80	57⅛	68	41½	41½
Chicago, Mil. & St. Paul	117⅝	99⅜	116¼	96¾	105⅛	85	85¼
Erie R. R.	39⅛	30	32½	20¼	32½	20⅛	20½
Great Northern, pfd.	143⅞	126	132⅝	115½	134¾	113	114
Lehigh Valley	155¾	155⅞	168⅝	141¼	156¼	118	122
Louisville & Nashville	170	138	142¼	126¼	141⅞	127	127
Missouri, Kansas & Texas ...	31⅝	25½	29⅛	18⅛	24	9	10¼
Missouri Pacific	47¾	35	43⅝	21¼	30	8	8
New York Central	121⅞	106⅛	109¾	90⅜	96⅝	77	80
N. Y., N. H. & Hartford ...	142¼	126	129⅞	65⅝	78	49⅝	51
Northern Pacific	131½	115⅜	122⅝	101¾	118½	97	98¾
Pennsylvania R. R.	186⅞	119⅞	123¾	106	115½	105⅛	105⅛
Reading	179¼	148⅛	171¾	151¾	172¼	137	140
Rock Island	30½	22⅜	24⅛	11⅝	16⅝	⅞	⅞
Southern Pacific	115½	103½	110	83	99½	84⅞	84⅞
Union Pacific	176¾	150¾	162¾	137¾	164⅛	112	113
Wabash	9⅞	3¾	6	2	4⅝	⅞	⅞
Industrials.							
Amalgamated Copper	92¾	60	80½	61	78⅛	49	49½
Am. Beet Sugar	77	46¼	50½	19¾	29⅜	19	19
American Can	47⅜	11¼	46⅞	21	35⅛	19¼	19½
American Can pfd.	126¼	90⅝	129½	80½	96	80	80
Am. Car & Foundry	63⅝	49⅜	56⅜	36½	53½	44	44⅛
Am. Cotton Oil	60¼	45½	57⅜	33½	46½	32	32
Am. Locomotive	47½	31¾	44½	27	37¼	20¼	20¼
Am. Smelting & Refin'ng	91	66¼	74¾	58½	71⅝	50¼	52½
Brooklyn Rapid Transit	94½	76¾	92¾	83¾	94¼	79	79½
Chino Copper	50⅜	25	47⅝	30⅜	44	32	32
Colo. Fuel & Iron Co.	43¾	23⅛	41½	24½	34½	20½	21½
Consolidated Gas	149½	135¾	142⅜	125⅛	139½	116	116½
General Electric	188½	155	187	129¾	150⅝	138¾	139
Interborough Metropolitan ...	22	16¼	19⅝	12⅜	16⅜	10¾	11
International Harvester	126⅞	105¼	111½	96	113½	82	82
International Steam Pump ...	34	12	18½	4½	9⅞	3	3
Lackawanna Steel	55½	28	49⅝	29⅝	40	26½	26½
National Lead	68¼	51⅜	56¼	43	52	40	41⅝
Ray Consolidated Copper	24⅛	16	22	15	22½	16¼	16¼
Republic Iron & Steel	35⅛	15¾	28⅜	17	27	18½	18½
Republic Iron & Steel, pfd...	93⅜	64½	92¼	72	91¼	78	78
Sloss-Sheffield	59¾	39¼	45½	23	35	19½	19½
Texas Co.	130⅝	81	132½	89	149⅞	112	113
U. S. Rubber	67⅞	45¼	69½	51	63	44½	44¾
U. S. Steel Corporation	80¾	58¼	69⅛	49⅞	67¼	50½	51⅞
U. S. Steel Corporation, pfd.	117	107¼	110¾	102½	112¾	106½	106½
Utah Copper	67½	52½	60⅝	39⅝	59⅜	45⅞	46
Va.-Carolina Chem.	57¼	40¾	43⅛	22	34⅞	21	21
Western Union Telegraph ...	86¼	72	75⅛	54⅝	66⅞	53⅛	53⅝

IRON AND STEEL.

September	14.625	+15.0
October	14.775	—20.0
November	14.525	—47.5
December	14.050	—50.5
January (1914)	13.545	—12.0
February	13.425	+45.0
March	13.875	— 2.5
April	13.85	0.0
May	13.85	—17.5
June	13.675	—12.5
July	13.60	—10.0
August	13.50	

Unfinished Steel.

Open market transactions in billets and sheet bars have been very light for months The market, indeed has developed into a curious if not unfortunate position. The large sellers of sheet bars gradually adopted a policy of covering their customers by contracts with monthly adjustment of price, according to the prevailing market, and their success has rather embarrassed them, in that it has left very little tonnage with which a market would be made. So relatively unimportant is "the open market" on

U. S. STEEL CORPORATION'S OPERATIONS.

EARNINGS AND UNFILLED ORDERS.

Earnings by Quarters.

Net earnings by quarters since 1908:

Quarter.	1914.	1913.	1912.
1st	$17,994,381	$34,426,801	$17,826,973
2nd		41,210,813	25,102,265
3rd		38,450,400	30,063,512
4th		23,036,349	35,185,557
Year		137,133,363	108,178,307
	1911.	1910.	1909.
1st	$23,519,203	$37,616,876	$22,921,268
2nd	28,108,520	40,170,960	29,340,491
3rd	29,522,725	37,365,187	38,246,907
4th	23,155,018	25,901,730	40,982,746
Year	104,305,466	141,054,753	131,491,412

Unfilled Orders.

(At end of the Quarter):

	First.	Second.	Third	Fourth.
1903..	5,410,719	4,666,578	3,278,742	3,215,123
1904..	4,136,961	3,192,277	3,027,436	4,696,203
1905..	5,579,560	4,829,655	5,865,377	7,605,086
1906..	7,018,712	6,809,584	7,936,884	8,489,718
1907..	8,043,858	7,603,878	6,425,008	4,642,553
1908..	3,765,343	3,313,876	3,421,977	3,603,527
1909..	3,542,590	4,057,939	4,796,833	5,927,031
1910..	5,402,514	4,257,794	3,158,166	2,674,757
1911..	3,447,301	3,361,058	3,611,317	5,084,761
1912..	5,304,841	5,807,346	6,551,507	7,932,164
1913..	7,468,956	5,807,317	5,003,785	4,282,108
1914..	4,653,825	.....	.....	.....

BOOKINGS AND SHIPMENTS.

In this table, first two columns, percentages of bookings and shipments to total capacity, are our estimates, while last column is derived from official reports of "unfilled tonnage" while third percentage column is directly computed from this tonnage column.

1912—	Shipments. %	Bookings. %	Difference. %	Difference. Tons.
April	92	124	+32	+360,044
May	93	101	+ 8	+ 86,098
June	94	99	+ 5	+ 56,363
July	82	95	+13	+149,733
August	92	110	+18	+206,296
September .	98	135	+37	+388,132
October ..	98	187	+89	+1,042,874
November .	96	120	+24	+258,512
December ..	97	104	+ 7	+ 79,281
January 1913	98	89	— 9	—104,796
February ..	98	82	—16	—170,654
March	93	77	—16	—187,758
April	93	51	—42	—490,194
May	95	41	—54	—654,440
June	93	47	—46	—517,005
July	90	55	—35	—407,961
August	90	75	—15	—175,888
September .	82	74	—18	—219,683
October ...	87	74	—40	—490,018
November ..	70	59	—11	—117,420
December ..	50	40	—10	—114,239
January 1914	55	83	+28	+331,572
February ...	67	105	+38	+412,764
March	72	40	—32	—372,615
April	67	35	—32	—376,757
May	62	37	—25	—278,908
June	63	66	+ 3	+ 34,697

IRON AND STEEL.

sheet bars, indeed, that for months at a time leading mills occupy the position of stating that they "are out of the market" though at the same time arranging month by month for settlement upon terms of thousands of tons of material. The market as generally quoted softened somewhat early in July, particularly with respect to Youngstown, and the recognized quotations for some time were $19 for billets and $19.50 for sheet bars, f.o.b. maker's mill, Youngstown, with $19.50 and $20 respectively quoted f.o.b. maker's mill, Pittsburgh. In the first week in August the mills advanced their regular quotations, making the market quotable $20 for billets and $21 for sheet bars, f.o.b. maker's mill, Pittsburgh or Youngstown.

Finished Steel.

The majority of steel products are showing an advancing tendency, the advances in most cases having started before the war. In bars, plates and shapes advances are due largely to the reserve of sellers. In sheets the advance is due partly to heavy buying by consumers, for prompt shipment, whereby nearly all the mills have actual specifications for operating at full capacity for four or five weeks, a better showing than they have been able to make for months.

Tin plate presents no real market, as very few mills would sell, and then only in limited lots to favored customers. How long the supply of tin will last the mills is a question, but it is not likely that they have enough even to finish the month of August. All cut prices disappeared instantly when it was recognized that tin might not be procurable. Some mills making terne plates have advanced prices 50 cents per case, and jobbers generally are making a similar advance.

THE MANGANESE SITUATION.

Supplementary to an extensive presentation of the manganese situation in our issue of July 30th, covering the imports of ore and metal and the domestic production and consumption, the following statement of ore imports is given:

Imports of Manganese Ore and Oxide, Calendar Years.

1906	221,260
1907	209,021
1908	178,203
1909	212,765
1910	242,348
1911	176,852
1912	300,661
1913	345,060

	1913	1914
January	55,543	24,135
February	41,553	15,520
March	45,642	18,992
April	20,631	30,478
May	18,901	23,497
June	8,697	
July	36,794	
August	10,714	
September	19,629	
October	30,084	
November	16,159	
December	40,743	
Total	345,060	112,622

Elsewhere in this issue is given an exhaustive statement of the manganese situation, the imports of ore being shown, with the sources indicated, while imports, production and apparent consumption are indicated for a period of years.

In recent years we have depended about equally upon domestic and foreign ferromanganese in the production of steel. In 1910 the imports largely predominated over the home production, while in 1911 there was a slight excess of imports. In 1912 the domestic production was much larger than the imports, while in 1913 we estimate that home production and imports were practically equal. The official import figures are available only for the first nine months of 1913.

The ferromanganese produced in the United States is made exclusively from foreign ores. The imports of the alloy have been exclusively from England and Germany. That source of supply the European war shuts off for an indefinite period and the question therefore is whether ore can be secured for producing

IRON AND STEEL.

ferromanganese at home. It may be mentioned that there is an unlimited capacity for making ferromanganese in the United States, as most of the blast furnaces are of suitable proportions. Considerable skill is required, but that has been at hand.

By consulting the table of imports of manganese ores by countries of origin, through the fiscal year 1913, it will be observed that by far the most important source of supply has been British India. Russia was an altogether unimportant source, until the United States Steel Corporation secured some important concessions in Russia in Asia, though not all the concessions it sought at that time. From a very few tens of thousands of tons a year the imports from Russia in Asia jumped in the fiscal year 1913 to 125,736 tons, that source taking second place, inferior only to British India which in the same year furnished 167,319 tons. Brazil, which has been a steadily increasing source of supply, reached 71,300 tons in 1913.

It may be assumed that by reason of the war mining in the Russian districts will be difficult, and India and Brazil must be dependea upon. Under pressure the supplies from those sources can doubtless be increased adequately.

The question of transport has loomed large, but there is reason to conclude that it can be solved, on account of the great interests at stake. It is possible that spiegeleisen, which is made from domestic ores, can be used in steel manufacture to to an extent, also some relatively low grade ferromanganese, running say 30 to 40% manganese (standard ferromanganese is 80% manganese while spiegeleisen is 18 to 22%) and thus the requirements in standard ferromanganese may be reduced.

To show what efforts it will be justifiable to put forth to move manganese ore, it may be cited that the weight of manganese ore, required, proportionate to the tonnage of steel ingots, is about 2.5%, as shown by statistics covering a period of years. Thus one ton of manganese ore needs to be transported for every 40 tons of steel ingots produced. Allowing 20% loss from the ingot to the finished rolled steel, an increase in the cost of making a net ton of finished steel would be equivalent to about $36 on a ton of manganese ore. When the stake is so rich, means must found for moving the ore if there is to any ocean freight movement at all.

As to the present stocks of mangane ore in the United States precise inform tion is naturally not furnished by the hol ers, but it is generally understood that the are fairly large stocks.

The whole manganese question is o of price. To the time when the war open the German ferromanganese was selling $37 and the English at $38. The price c be doubled, tripled or quadrupled if nece sary to bring out material, without enou being added to the cost of finished steel discourage sensibly the consumption.

WESTERN IRON AND STEEL MARKET.

Business conditions have improved ve slowly in the west during July. In t wheat states conditions are good and a lines of trade are returning to a norm basis, as the natural result of an enormo crop, the greatest in the history of t country, and good prices. In Chicago a tivity in building lines is now in full swin since the settlement of local strike trouble In the steel trade, however, July has n shown much improvement as June in t volume of business. There has been n setback, and the trade has held its own, b there has been only a small increase in t volume of business.

More Inquiries for Pig Iron.

A large tonnage of pig iron was sold du ing June without attracting attention, re resenting purchases of very large buye whose operations were not made public i the current weekly market reports, but we mentioned in this review last month. Du ing July there have been no large tran actions, excepting basic sales to steel fou dries. There have been more sales to th middle class of buyers, in lots of 100 t 1,000 tons, and it is difficult to estimat whether the aggregate is more or less tha the tonnage sold in June to a few buyers.

The Interstate Commerce Commissio announced early in the month its decisio on rates from southern points, making a re duction from $4.35 to $4.00 in the rate fro Birmingham to Chicago, which will appl to all teritory taking Chicago rates, wit

PRICE CHANGES.

Price changes in merchant bars, structural shapes, plates, wire nails, merchant pipe, sheets and tin plates are given below, with dates, from June, 1912. These are the commodities used in compiling our **composite finished steel.** In some cases the dates named are those upon which prominent producers announced price changes, but more frequently dates are merely those upon which our quotations were changed.

1912—			
June 26	Shapes	1.25	to 1.30
" 26	Plates	1.25	to 1.30
July 1	Sheets	1.90	to 1.95
" 9	Tin plates	3.40	to 3.50
" 22	Wire nails	1.60	to 1.65
" 24	Sheets	1.95	to 2.00
" 25	Pipe	80%	to 79%
Aug. 1	Bars	1.25	to 1.30
" 1	Plates	1.30	to 1.35
" 1	Shapes	1.30	to 1.35
" 13	Sheets	2.00	to 2.05
" 20	Plates	1.35	to 1.40
" 20	Shapes	1.35	to 1.40
" 26	Wire nails	1.65	to 1.70
Sept. 4	Tin plate	3.50	to 3.60
" 4	Sheets	2.05	to 2.10
" 11	Sheets	2.10	to 2.15
" 26	Bars	1.30	to 1.35
Oct. 8	Plates	1.40	to 1.45
" 8	Shapes	1.40	to 1.50
" 9	Bars	1.35	to 1.40
" 10	Plates	1.45	to 1.50
" 10	Shapes	1.45	to 1.50
" 17	Sheets	2.15	to 2.25
Dec. 10	Wire nails	1.70	to 1.75
1913—			
Jan. 2	Pipe	79%	to 80%
" 14	Sheets	2.25	to 2.35
Feb. 1	Plates	1.50	to 1.45
" 1	Shapes	1.50	to 1.45
Mar. 24	Wire nails	1.75	to 1.80
April 14	Pipe	80%	to 79½%
May 27	Pipe	79½%	to 79%
June 2	Wire nails	1.80	to 1.75
" 11	Sheets	2.35	to 2.30
" 18	Sheets	2.30	to 2.25
July 1	Wire nails	1.75	to 1.70
Aug. 9	Pipe (¾-3-in.)	79%	to 80%
" 12	Wire nails	1.70	to 1.65
" 21	Sheets	2.25	to 2.15
" 27	Plates	1.45	to 1.40
Sept. 1	Shapes	1.45	to 1.40
" 22	Sheets	2.15	to 2.05
Oct. 2	Tin plates	3.60	to 3.50
" 3	Wire nails	1.65	to 1.60
" 16	Plates	1.40	to 1.35
" 21	Plates	1.35	to 1.30
" 23	Shapes	1.40	to 1.35
1913—			
" 24	Sheets	2.05	to 2.00
" 27	Pipe	2½% extra discount	
" 28	Bars	1.40	to 1.35
Nov. 3	Tin plate	3.50	to 3.40
" 7	Bars	1.35	to 1.30
" 17	Sheets	2.00	to 1.95
" 25	Bars	1.30	to 1.25
" 25	Plates	1.30	to 1.25
" 25	Shapes	1.35	to 1.30
" 28	Wire nails	1.60	to 1.55
Dec. 2	Sheets	1.95	to 1.90
" 3	Shapes	1.30	to 1.25
" 4	Plates	1.25	to 1.20
" 11	Bars	1.25	to 1.20
" 22	Shapes	1.25	to 1.20
" 31	Sheets	1.90	to 1.80
1914—			
Jan. 6	Wire nails	1.55	to 1.50
" 7	Sheets	1.80	to 1.85
" 13	Wire nails	1.50	to 1.55
" 23	Sheets	1.85	to 1.90
" 30	Sheets	1.90	to 1.95
Feb. 2	Pipe	80%	to 79½%
" 2	Wire nails	1.55	to 1.60
" 4	Shapes	1.20	to 1.25
Mar. 9	Shapes	1.25	to 1.20
" 20	Plates	1.20	to 1.15
April 1	Bars	1.20	to 1.15
" 8	Sheets	1.95	to 1.90
" 17	Shapes	1.20	to 1.15
" 20	Pipe	79½%	to 80%
" 27	Sheets	1.90	to 1.85
" 29	Tin plates	3.40	to 3.30
May 19	Bars	1.15	to 1.12½
" 22	Wire nails	1.60	to 1.55
" 26	Shapes	1.15	to 1.12½
" 29	Plates	1.12½	to 1.10
" 29	Wire nails	1.55	to 1.50
June 9	Sheets	1.85	to 1.80
" 19	Bars	1.12½	to 1.10
" 19	Shapes	1.12½	to 1.10
July 20	Wire nails	1.50	to 1.55
" 21	Bars	1.10	to 1.15
" 21	Shapes	1.10	to 1.15
" 23	Plates	1.10	to 1.15
" 30	Tin plate	3.30	to 3.35
Aug. 5	Tin plate	3.25	to 3.40
" 6	Sheets	1.80	to 1.85

IRON AND STEEL.

corresponding readjustments to other points north of the Ohio River. This improves the prospects of southern iron being able to hold a share of the trade in this market against iron made from Wisconsin and Lake Superior ores. It is now expected that the new rates will become effective in October, and current sales of southern iron are being made for last quarter, based on the new rates. This case has been dragging nearly 3 years, including the time it was under discussion by the southern interests before the proceedings were actually begun before the commission. The reduction will help the southern interests more in holding their trade at points outside of Chicago, where local iron must pay a rail haul, than in the local Chicago market. A feature of the trade which intensifies competition in this market is that for several years the Wisconsin furnaces have been making iron which corresponds very closely to the analysis of southern foundry; these furnaces using ore found in the southern part of Wisconsin, and having the advantage of low rates into Chicago and surrounding territory.

Prices have weakened somewhat during July, and at the close of the month considerable talk is heard of $10 iron. The prevailing price is $10.25 for No. 2, but this is shaded as a basis in many cases where the iron is sold by analysis. Iron higher than No. 2 in silicon may be sold at a figure corresponding to $10 for strictly No. 2, and there have also been sales at $10 where the percentage of sulphur was a trifle high.

The European war scare does not seem to have affected inquiries in the closing week of the month; but in a slow market inquiries have become somewhat indefinite.

More Rail Tonnage.

The Gary mill obtained a good share of the Pennsylvania rail order, and also of the order for the Southern Railway. Enough business has accumulated so that the rail mills both at Gary and the South Works are running steadily on a slow schedule. Six blast furnaces out of eight are in blast at Gary, and five are in and six out at South Chicago, with three in and one out at Joliet. Several additional open hearth furnces are in operation at Gary.

Structural Shapes and Plates.

The steel car shops have been getting a fair run of orders in recent months, and this has made a good tonnage of plates and car shapes for the mills in this district. There is a fair demand for steel for bridges and building purposes, but this end of the market has not yet reached its old time proportions.

Steel Bar Business Fair.

Concrete work continues to furnish the better portion of the bar business. The plow manufacturers have not fully recovered from their bad year in 1913, and their specifications reach only a fair volume. Manufacturing consumers of steel were badly frightened at the "trust" legislation at Washington. The whole country has grown weary of the long legislative program of Congress, and it will take considerable time for industrial consumers of steel to get their business on a healthy basis, without considering the effects of the European war.

BRITISH IRON AND STEEL EXPORTS

According to the Board of Trade returns, in tons of 2,240 pounds:

1912—	Pig iron.	Rails.	Tin plates.	Total*
Nov. ..	88,006	30,996	45,534	428,855
Dec. ..	82,935	29,799	35,920	391,128
Year	1,262,383	407,175	481,123	4,933,112
1913—				
Jan. ..	101,964	35,523	46,260	448,186
Feb. ..	63,961	41,849	33,374	363,551
Mar. ..	90,012	34,064	41,579	398,621
April ..	101,413	46,081	41,882	470,040
May ..	97,093	45,025	50,441	463,197
June ..	91,913	52,073	41,483	427,148
July ..	96,135	53,570	43,166	455,626
Aug. ..	101,843	44,637	35,274	395,656
Sept. ..	106,525	26,283	36,572	394,849
Oct. ..	99,588	40,625	40,733	435,534
Nov. ..	100,235	40,140	44,317	430,113
Dec. ..	74,133	40,744	38,840	373,354
Year	1,124,815	500,614	494,921	5,050,919
1914—				
Jan. ..	82,182	57,904	43,164	467,440
Feb. ..	59,832	35,484	41,744	353,861
Mar. ..	92,364	40,207	40,863	414,902
April ..	93,396	30,682	44,296	394,535
May ..	95,037	56,881	48,628	437,648
June ..	88,569	39,700	36,565	356,066
6 mos.	511,380	260,858	255,260	2,434,461

* Includes scrap, pig iron, rolled iron and steel cast and wrought iron manufactures, bolts, nuts, etc. but not finished machinery, boilers, tools, etc.

COMPOSITE STEEL.

Computation for August 1, 1914.

Pounds.	Group.	Price.	Extension.
2½	Bars	1.15	2.875
1½	Plates	1.15	1.725
1½	Shapes	1.15	1.725
1½	Pipe (¾-3)	1.95	2.925
1½	Wire nails	1.55	2.325
1	Sheets (28 bl.)	1.80	1.800
½	Tin plates	3.25	1.625
10 pounds			15.000

One pound 1.5000

(Averaged from daily quotations.)

	1910.	1911.	1912.	1913.	1914.
Jan...	1.8625	1.7415	1.5123	1.7737	1.5394
Feb..	1.8475	1.7520	1.4878	1.7625	1.5794
Mar..	1.8475	1.7590	1.4790	1.7646	1.5638
April.	1.8400	1.7600	1.5206	1.7747	1.5337
May..	1.8325	1.7510	1.5590	1.7786	1.5078
June.	1.7955	1.6817	1.5794	1.7719	1.4750
July..	1.7755	1.6701	1.6188	1.7600	1.4805
Aug..	1.7550	1.6394	1.6784	1.7400	.....
Sept.	1.7470	1.6090	1.7086	1.7093	.....
Oct...	1.7350	1.5461	1.7588	1.6779	.....
Nov..	1.7305	1.4930	1.7750	1.6203	.....
Dec..	1.7380	1.4812	1.7789	1.5558	.....
Year.	1.7922	1.6570	1.6214	1.7241	.....

SCRAP IRON & STEEL PRICES.

	Melting Steel. Pitts.	Bundled Sheet, Pitts.	No. 1 R.R. Wrought, Pitts.	No. 1 Cast, Pitts.	No. 1 Steel, Phila.	Heavy Melt'g. Ch'go.
1912—						
Nov.	15.35	13.12	16.00	15.00	15.30	13.80
Dec.	15.10	13.15	15.75	15.10	14.75	13.40
Year	13.76	11.92	14.16	13.28	13.82	12.30
1913—						
Jan.	15.00	13.10	15.35	14.65	14.50	12.75
Feb.	14.35	12.00	15.35	14.65	13.25	12.65
Mar.	14.35	11.60	15.35	14.60	13.60	12.50
Apr.	14.25	10.50	15.50	14.50	13.75	12.60
May	13.50	10.00	15.00	14.25	12.25	11.50
June	13.20	9.25	14.25	13.50	11.50	10.75
July	12.50	8.75	13.35	12.30	11.15	10.60
Aug.	12.40	8.25	13.25	12.50	11.85	10.75
Sep.	12.60	8.00	13.00	12.50	12.25	10.60
Oct.	12.25	7.40	13.00	12.40	11.20	10.35
Nov.	11.40	6.75	11.85	12.00	10.30	10.25
Dec.	11.00	6.40	11.65	11.60	9.75	9.25
Year	13.07	9.33	13.91	13.29	12.12	11.21
1914—						
Jan.	11.25	7.00	12.20	12.00	10.50	9.25
Feb.	12.00	8.25	12.80	12.50	11.50	10.70
Mar.	12.25	9.00	12.85	12.40	11.50	10.50
Apr.	12.25	9.00	12.00	12.15	10.80	10.00
May	11.75	9.10	11.75	12.25	10.60	10.00
June	11.75	9.10	11.75	12.25	10.50	9.80
July	11.75	8.50	11.75	11.50	10.60	9.75

COMPOSITE PIG IRON.

Computation for August 1, 1914.

One ton Bessemer, valley	$14.00
Two tons basic, valley (13.00)	26.00
One ton No. 2 foundry, valley	13.00
One ton No. 2 foundry, Philadelphia	14.25
One ton No. 2X foundry, Buffalo ...	13.00
One ton No. 2 foundry, Cleveland ...	13.75
One ton No. 2 foundry Chicago ...	14.50
Two tons No. 2 Southern foundry, Cincinnati (13.25)	26.50
Total, ten tons	$135.00
One ton $13.500	

Averaged from daily quotations:

	1910.	1911.	1912.	1913.	1914.
Jan...	17.598	14.375	13.420	17.391	13.492
Feb..	17.215	14.340	13.427	17.140	13.721
Mar..	16.702	14.425	13.581	16.775	13.843
April	16.315	14.375	13.779	16.363	13.850
May .	15.750	14.242	13.917	15.682	13.808
June.	15.320	14.032	14.005	14.968	13.606
July .	15.131	13.926	14.288	14.578	13.520
Aug..	14.727	13.874	14.669	14.565	.....
Sep...	14.612	13.819	15.386	14.692	.....
Oct...	14.435	13.692	16.706	14.737	.....
Nov..	14.415	13.532	17.226	14.282	.....
Dec..	14.408	13.430	17.475	13.838	.....
Year.	15.552	14.005	14.823	15.418	.....

UNFINISHED STEEL AND IRON BARS.

(Averaged from daily quotations.)

	Billets, Pitts.	Sheet bars, Pitts.	Rods, Pitts.	— Iron bars, deliv.— Phila.	Pitts.	Ch'go
1913—						
Feb.	29.00	30.00	30.00	1.67	1.65	1.59
Mar.	29.00	30.00	30.00	1.65	1.65	1.58
Apr.	27.50	28.00	30.00	1.68	1.65	1.58
May	27.00	27.50	30.00	1.68	1.65	1.55
June	26.50	27.50	29.00	1.61	1.65	1.50
July	26.50	27.50	28.50	1.55	1.65	1.50
Aug.	25.75	26.50*	28.00	1.42	1.62	1.44
Sep.	24.00*	25.00*	27.37	1.33	1.59	1.37
Oct.	22.50	23.25	26.50	1.32	1.54	1.27
Nov.	20.50	21.50	26.00	1.30	1.45	1.15
Dec.	20.00	21.00	25.25	1.25	1.37	1.12
Year	25.55	26.43	28.39	1.51	1.59	1.45
1914—						
Jan.	20.00	20.25*	25.75	1.24	1.35	1.11
Feb.	21.00	22.00	26.00	1.28	1.35	1.14
Mar.	21.00	22.00	26.00	1.28	1.35	1.15
Apr.	20.75	21.75	25.50	1.23	1.31	1.14
May	20.00	21.00	26.00	1.23	1.29	1.10
June	19.50	20.35	25.00	1.23	1.25	1.08
July	19.50	20.00	25.00	1.19	1.25	1.06

* Premiums for Bessemer.

IRON AND STEEL IMPORTS AND EXPORTS.

VALUE OF TONNAGE AND NON-TONNAGE.

	1909.	1910.	1911.	1912.	1913.	1914.
January	$10,329,388	$14,513,394	$18,738,391	$18,451,914	$25,141,409	$16,706,836
February	10,947,159	13,949,082	18,690,792	21,801,570	24,089,871	16,520,260
March	13,873,746	17,253,503	22,591,991	24,474,799	27,221,210	20,551,137
April	13,058,297	16,529,260	24,916,912	26,789,853	27,123,044	20,639,569
May	12,964,367	17,658,042	20,616,795	28,050,247	26,718,970	19,734,045
June	13,779,736	16,503,204	20,310,053	24,795,802	25,228,346	.....
July	11,866,772	16,108,102	17,454,772	24,917,952	24,170,604	.....
August	14,134,487	17,628,537	20,013,557	25,450,107	23,947,440	.....
September ...	12,966,908	16,776,178	19,875,308	23,286,040	22,831,082	.....
October	14,249,598	17,452,085	20,220,833	25,271,559	25,189,745	.....
November ...	14,434,690	18,594,806	20,823,061	26,406,425	20,142,141	.....
December ...	15,069,246	18,300,710	22,186,996	23,750,864	22,616,701	.....
Totals ...	$157,674,394	$201,271,903	$249,656,411	$289,128,420	$294,435,060	$94,151,847

EXPORTS OF TONNAGE LINES— Gross Tons.

	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January	102,630	74,353	70,109	118,681	152,362	151,575	249,493	118,770
February	87,912	81,773	84,837	110,224	150,919	204,969	241,888	121,206
March	112,787	96,681	94,519	124,980	216,360	218,219	257,519	159,998
April	132,790	93,285	100,911	117,921	228,149	267,313	259,689	161,952
May	91,543	64,041	109,808	135,306	178,589	307,656	242,353	139,107
June	92,996	69,770	114,724	120,601	174,247	273,188	243,189	.....
July	122,240	86,796	100,850	127,578	162,855	272,778	237,159	.....
August	118,792	86,244	105,690	131,391	177,902	282,645	209,856	.....
September	114,819	76,732	97,641	119,155	181,150	248,613	213,058	.....
October	123,170	85,766	110,821	129,828	186,457	251,411	220,495	.....
November	116,309	71,130	116,105	155,138	187,554	233,342	175,961	.....
December	86,019	77,659	137,806	150,102	190,854	235,959	195,719	.....
Totals	1,301,979	961,242	1,243,567	1,540,895	2,187,724	2,948,466	2,759,232	701,033

IRON ORE IMPORTS.

	1911.	1912.	1913.	1914.
Jan. . .	102,600	154,118	175,463	101,804
Feb. . .	94,820	129,693	188,734	112,574
Mar. . .	134,785	157,469	164,865	68,549
April ..	133,900	178,502	174,162	111,812
May ..	217,467	194,482	191,860	125,659
June . .	118,296	180,122	241,069	.....
July . .	200,845	185,677	272,017	.....
Aug. ...	175,183	178,828	213,139	..
Sep. . .	184,456	180,571	295,424	. .
Oett. .	172,459	202,125	274,433	..
Nov. .	128,019	163,017	179,727	. .
Dec. ..	148,902	199,982	223,933	. .
Totals	1,811,732	2,104,576	2,594,826	520,398

IRON AND STEEL IMPORTS.

	1910.	1911.	1912.	1913.	1914.
Jan..	56,207	33,071	20,008	21,740	17,835
Feb..	43,613	20,812	11,622	25,505	14,309
Mar..	54,176	23,533	15,466	27,467	27,829
April	47,698	22,392	12,481	25,742	30,585
May.	42,569	23,347	15,949	28,728	28,169
June	30,322	29,399	21,407	36,597	.....
July	41,933	15,782	17,882	39,694	.....
Aug..	36,879	10,944	20,571	18,740	.....
Sep..	30,961	14,039	18,740	19,941	.....
Oct..	31,455	21,035	25,559	20,825	....
Nov..	40,585	13,880	24,154	25,809	.....
Dec..	31,575	19,665	21,231	26,453	.....
Total	487,973	256,903	225,072	317,244	118,727

ROLLED IRON AND STEEL IN 1913.

The Bureau of Statistics of the American Iron and Steel Institute has now practically completed the compilation of production statistics for 1913. The production of rails, plates, structural shapes, sheets and tin plates was announced some time ago. The fresh statistics cover merchant bars, skelp, nail plate, etc., and show the totals of all rolled steel and rolled iron. Figures all refer to gross tons of 2,240 lbs

Merchant Bars.

	Iron.	Steel.	Total.
1913	1,026,632	2,930,977	3,957,609
1912	944,790	2,752,324	3,697,114
1911	835,625	2,211,737	3,047,362
1910	1,074,163	2,711,568	3,785,731
1909	952,230	2,311,301	3,263,531
1908	685,233	1,301,405	1,986,638
1907	1,440,356	2,530,632	3,970,988
1906	1,481,348	2,510,852	3,992,200
1905	1,322,439	2,271,162	3,593,601

Concrete Bars.

	Iron.	Steel.	Total.
1913	113	319,557	319,670
1912	2,500	271,832	274,332
1911	2,388	256,353	258,741
1910	4,645	236,464	241,109
1909	.....	159,352	159,352

Skelp.

	Iron.	Steel.	Total.
1913	312,746	2,189,218	2,501,964
1912	327,012	2,119,804	2,446,816
1911	322,397	1,658,276	1,980,673
1910	350,578	1,477,616	1,828,194
1909	370,151	1,663,230	2,033,381
1908	297,049	853,534	1,150,583
1907	444,536	1,358,091	1,802,627
1906	391,517	1,137,068	1,528,585
1905	452,797	983,198	1,435,995

Miscellaneous 1913.

	Iron.	Steel.	Total.
Hoops	.....	280,886	280,886
Bands and cotton-ties	.....	499,660	499,660
Long angle splice bars, fish-plate bars, tie-plate bars, and other rail joint shapes	46,574	639,816	686,390
Sheet piling	.....	46,289	46,289
Railroad ties	.....	44,244	44,244
Spike and chain rods, bolt and nut rods, horse-shoe-bars, strips etc.	217,343	850,101	1,067,444
Rolled forging blooms, billets, etc.	403	536,807	537,210
Blooms, billets, sheet bars, etc., for export	.....	88,778	88,778

Rolled Iron and Steel in 1913, Compared.

	Iron.	Steel.	Total.
Rails	.....	3,502,780	3,502,780
Plates and shapes	64,729	5,686,308	5,751,037
Nail and spike plate	5,044	32,459	37,503
Wire rods	832	2,463,975	2,464,807
Structural shapes	3,841	3,001,131	3,004,972
Merchant bars	1,026,632	2,930,977	3,957,609
Bars for reinforced concrete work.	113	319,557	319,670
Skelp, flue, etc.	312,746	2,189,218	2,501,964
Long angle splice bars, tie-plate bars, etc.	46,574	639,816	686,390
Hoops	.....	280,886	280,886
Bands and cotton ties	.....	499,660	499,660
Rolled sheet piling, not including fabricated	.....	46,289	46,289
Railroad ties.	.....	44,244	44,244
All other finished rolled products	217,343	850,101	1,067,444
Rolled forging blooms, forging billets, etc.	403	536,807	537,210
Exports of blooms billets, sheet bars, etc.	.....	88,778	88,778
Total for 1913	1,678,257	23,112,986	24,791,243
1912	1,637,582	23,019,259	24,656,841
1911	1,460,615	17,578,556	19,039,171
1910	1,740,156	19,881,123	21,621,279
1909	1,709,431	17,935,259	19,644,690

ROLLED IRON AND STEEL.

(Totals Continued.)

	Iron.	Steel.	Total.
1908	1,238,449	10,589,744	11,828,193
1907	2,200,086	17,664,736	19,864,822
1906	2,186,557	17,401,911	19,588,468
1905	2,059,990	14,780,025	16,840,015
1904	1,760,084	10,253,297	12,013,381

In addition to the 46,289 tons of rolled sheet piling above reported there were produced by rolling mills and steel works in 1913 about 13,463 tons of fabricated sheet piling.

CAR BUYING.

Freight cars ordered:		
First half 1912.....	85,000	
Second half 1912.....	150,000	
Year 1912		235,000
First half 1913.....	114,000	
Second half 1913.....	33,000	
Year 1913		147,000
January, 1914	10,000	
February	13,000	
March	7,000	
April	10,000	
May	9,000	
June	15,900	
July	6,800	
Seven months, 1914		70,800
Equivalent rate per year		121,000

PIG IRON PRODUCTION.

The production of pig iron during July amounted to 1,957,645 tons compared with 1,917,783 tons in June, according to the Iron Age. The July daily average was smaller than that of June, due to the extra day in the former month, July showing 63,150 tons per day and June 63,916 tons.

There were 188 furnaces in blast on August 1st compared with 194 active furnaces on July 1st but as many of the stacks blowing out were of small capacity and others which were blown in were of larger capacity, the daily capacity in blast on August 1st was 63,935 tons as against 63,698 tons on July 1st.

The daily rate of production of coke and anthracite pig iron by months from January 1910 to date is as follows:

	1910	1911.	1912.	1913.	1914.
Jan. .	84,148	56,752	66,384	90,172	60,808
Feb. .	85,616	64,090	72,442	92,369	67,453
Mar..	84,459	70,036	77,591	89,147	75,738
April.	82,792	68,836	79,181	91,759	75,665
May..	77,102	61,079	81,051	91,039	67,506
June .	75,516	59,585	81,358	87,619	63,916
July..	69,305	57,841	77,738	82,601	63,150
Aug .	67,963	62,150	81,046	82,121	.....
Sep .	68,476	65,963	82,128	83,531	...
Oct .	67,520	67,811	86,722	82,155	..
Nov.	63,659	66,648	87,697	74,453	.
Dec. .	57,349	65,912	80,766	63,957	..

RAILROAD EARNINGS.

The following table is compiled from the monthly reports of the Interstate Commerce Commission, and cover all railroads in the United States having gross income of $1,000,000 or over per year The statements are per mile of road operated, and show gross revenue from operations, operating expenses and net operating revenue.

	1911-12			1912-13			1913-14		
	Revenue.	Expenses	Net.	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.
July ...	$1,025	$698	$327	$1.113	$750	$363	$1,161	$814	$348
Aug. ...	1,119	726	393	1,211	776	435	1,219	831	388
Sept. ...	1,137	725	411	1,206	775	430	1,237	832	405
Oct. ...	1,175	749	425	1,311	827	484	1,294	870	424
Nov. ...	1,093	734	360	1,213	806	407	1,163	824	339
Dec. . .	1,046	720	326	1,159	799	360	1,100	800	299
Jan. .	932	728	203	1,087	803	284	1,005	776	229
Feb. .	964	710	254	1,011	752	259	900	729	171
Mar. . .	1,051	746	305	1,081	799	282	1,076	782	294
April	974	717	257	1,065	802	262	1,025*	763	258
May ...	1,030	735	295	1,154	834	321	1,030*	779*	250*
June ...	1,075	737	339	1,140	803	337			
Totals.	$12.621	$8,725	$3,895	$13,754	$9,530	$4,225			

* Bureau of Railway Economics; Interstate Commerce Commission not yet available.

COPPER.

THE COPPER SITUATION.

[illegible] and [illegible] extremely dull at around 13c to 13½c, ire until in the closing week of the month when with the serious condition of finance, nd impending war, the market declined rtually without business from 13.70 to 35, and has since further declined to 12⅜, ll f.o.b. New York, cash.

The situation is that America is at pres- [illegible] great extent [illegible] grade, which has about one-half of our production. To meet the situation the producers have instituted a reduction in output smelters running from 25 to 50 per cent, nd the refinery output has been reduced bout 30 per cent. A further reduction will ollow unless means for exporting are obained to England at greater quantities than ossible at present. For the first 18 days f August we have been able to ship some ,000 tons. But while England is eager for Copper, our great German and Continental market is completely shut off, and it is impossible to tell when these markets will again be open.

The war has given an explanation of our large exports to Germany during the past six months, and which so puzzled the trade. There was no consumption abroad to justify the increase, and yet European consumers did not seem to be increasing their stocks. It is now evident that the German Government was quietly accumulating this metal in anticipation of probable war when supplies, as has been the case lately, would be cut off from America.

Scarcity of prices continue to rule in the London market for spot Electrolytic, and sales are reported, as matter of private treaty, at around 15½.

The prospects are that our American consumption will increase in the future, and that our manufacturers will be called on sooner or later to supply world's needs of copper products that Europe in its present condition, and conditions to rule even after peace comes, is unable to take care of.

The Producers have decided for the first time on record on account of the extraordinary conditions to suspend their usual monthly statistics.

In the absence of the producers' statistics for July there are various estimates being made concerning the condition of stocks on the first of this month. The following is a rough average of three of the estimates that we have heard of:

	Pounds.
July production	145,000,000
Domestic deliveries	58,000,000
Export deliveries	66,000,000
Total deliveries	124,000,000
Increase in stocks	21,000,000

If that is correct the stocks on August 1st were about 127,000,000 lbs. or approximately two months' domestic requirements.

COPPER PRICES IN JULY.

Day.	— NEW YORK — Lake.	Electrolytic.	Casting.	— LONDON — Standard (Prompt) £ s d	Best Selected. £ s d
	Cts.	Cts.	Cts.		
1.	13.87½	13.55	13.35	61 0 0	(*)
2.	14.00	13.60	13.45	61 12 6	65 15 0
3.	14.00	13.65	13.50	61 12 6	66 0 0
4.					
5					
6.	14.12	13.75	13.60	62 10 0	66 0 0
7	14.12½	13.75	13.60	62 5 0	66 0 0
8.	14.12½	13.75	13.60	62 6 3	66 0 0
9.	14.12½	13.75	13.60	61 10 0	66 0 0
10.	14.12½	13.75	13.60	61 5 0	66 0 0
11					
12					
13.	13.87½	13.70	13.55	61 10 0	65 15 0
14.	13.75	13.65	13.52½	61 0 0	65 0 0
15.	13.75	13.65	13.52½	61 2 6	65 0 0
16.	13.75	13.65	13.52½	61 2 6	65 5 0
17.	13.75	13.65	13.52½	61 6 3	65 10 0
18					
19					
20.	13.75	13.60	13.45	61 0 0	65 5 0
21.	13.70	13.55	13.40	60 10 0	65 0 0
22.	13.65	13.50	13.35	60 5 0	65 0 0
23.	13.65	13.45	13.30	60 0 0	64 15 0
24	13.56¼	13.43¾	13.18¾	59 15 0	64 10 0
25.					
26.					
27.	13.43¾	13.20	13.06¼	58 15 0	63 0 0
28.	13.31¼	13.06¼	12.93¾	58 5 0	63 0 0
29.	13.12½	12.93¾	12.81¼	57 5 0	62 10 0
30.	13.12½	12.87½	12.75	56 0 0	61 15 0
31.	13.12½	12.87½	12.75		
High	14.25	13.80	13.65	62 11 3	66 0 0
Low.	13.00	12.75	12.625	56 0 0	61 15 0
Av. ..	13.73	13.487	13.345	60 10 9	61 19 1

(* No quotation received

COPPER.

LAKE COPPER PRICES.

Average monthly prices of Lake Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.93	12.75	14.37½	16.89	14.76½
Feb.	13.76½	12.73	14.38½	15.37½	14.98
Mar.	13.71½	12.56	14.87	14.96	14.72
April	13.31	12.41	15.98	15.55	14.68
May	12.98	12.32	16.27	15.73	14.44
June	12.83½	12.63	17.43	15.08	14.15
July	12.62½	12.52	17.37	14.77	13.73
Aug.	12.78½	12.70	17.61	15.79	.....
Sept.	12.72	12.57	17.69	16.72	.....
Oct.	12.90	12.47½	17.69	16.81	.....
Nov.	13.00½	12.84	17.66	15.90	.....
Dec.	12.92	13.79	17.62½	14.82	.....
Av..	13.12	12.71	16.58	15.70	.....

ELECTROLYTIC COPPER PRICES.

Average monthly prices of Electrolytic Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.68	12.53	14.27	16.75½	14.45
Feb.	13.51	12.48	14.26	15.27	14.67
Mar.	13.42½	12.31	14.78	14.92½	14.33½
April	12.93	12.15½	15.85	15.48	14.34
May	12.67	12.13	16.16	15.63	14.13
June	12.59	12.55	17.29	14.85	13.81
July	12.36½	12.62½	17.35	14.57	13.49
Aug.	12.56	12.57½	17.60	15.68	.....
Sept.	12.49	12.39	17.67	16.55	.....
Oct.	12.77½	12.36	17.60	16.54	.....
Nov.	12.87½	12.77	17.49	15.47	.....
Dec.	12.72½	13.71	17.50½	14.47	.....
Av..	12.88	12.55	16.48	15.52	.....

CASTING COPPER PRICES.

Average monthly price of Casting Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.60	12.39	14.02	16.57	14.27½
Feb.	13.41	12.33	14.02	15.14	14.48
Mar.	13.31	12.20	14.53	14.76	14.18
April	12.87	12.07	15.72½	15.33	14.18
May	12.62	12.08	16.01	15.45½	14.00
June	12.52	12.40	17.08	14.72	13.65
July	12.30	12.45	17.00	14.40½	13.34½
Aug.	12.45	12.42	17.35	15.50	.....
Sept.	12.46	12.23	17.51	16.37½	.....
Oct.	12.70	12.21	17.44	16.33	.....
Nov.	12.82	12.61	17.34	15.19	.....
Dec.	12.64	13.56½	17.34	14.22	.....
Av.	12.81	12.42	16.29	15.33	.....

VISIBLE SUPPLY OF COPPER.

Visible supply of copper at the end of each month based on the returns of the Copper Producers' Association and H. R. Merton & Company.

1910—	Stocks in American Producers' hands.	European Visible Supply.	Combined Visible Supply.
May ..	160,425,973	239,265,600	399,691,573
June ..	168,386,017	232,863,680	401,249,697
July ..	170,640,678	222,295,360	392,936,038
Aug. ..	168,881,245	218,413,440	387,294,685
Sept. ..	148,793,714	210,472,640	359,266,354
Oct. ..	139,261,914	198,065,280	337,327,191
Nov. ..	130,389,069	193,200,000	323,589,069
Dec. ..	122,030,195	187,705,280	309,735,475
1911—			
Jan. ..	142,439,490	*236,976,320	379,415,810
Feb. ..	156,637,770	226,210,880	382,848,650
Mar. ..	162,007,934	223,030,080	385,038,014
April ..	165,555,908	212,280,320	377,836,228
May ..	165,995,932	202,413,120	368,409,052
June ..	157,434,164	195,937,280	353,371,444
July ..	137,738,858	192,584,000	330,322,858
Aug. ..	133,441,501	191,215,360	324,656,861
Sept. ..	140,894,856	191,945,600	332,840,456
Oct. ..	134,997,642	176,816,640	311,814,282
Nov. ..	111,785,188	164,151,680	275,936,868
Dec. ..	89,454,695	158,329,920	247,784,615
1912—			
Jan. ..	66,280,643	153,820,800	220,101,443
Feb. ..	62,939,988	141,135,680	204,075,668
Mar. ..	62,367,557	136,808,000	199,175,557
April ..	65,066,029	134,155,840	199,221,869
May ..	49,615,643	117,797,120	167,412,763
June ..	44,335,004	107,817,920	152,152,924
July ..	50,280,421	113,290,240	163,570,661
Aug. ..	46,701,374	113,783,040	160,484,414
Sept. ..	63,065,587	107,403,520	170,469,107
Oct. ..	76,744,964	103,801,600	180,546,564
Nov. ..	86,164,059	96,938,240	183,102,299
Dec. ..	105,312,582	96,857,600	202,170,182
1913—			
Jan. ..	123,198,332	96,546,240	219,744,572
Feb. ..	122,302,198	100,067,520	222,369,718
Mar. ..	104,269,270	†100,965,760	205,235,030
April ..	75,549,108	98,374,720	173,923,828
May ..	67,474,225	90,018,880	157,493,105
June ..	52,904,606	85,559,040	138,463,646
July ..	53,594,945	79,804,480	133,399,425
Aug. ..	38,314,037	76,260,800	114,574,837
Sept. ..	29,793,094	62,314,560	92,107,654
Oct. ..	32,566,382	57,854,480	90,420,862
Nov. ..	47,929,429	59,935,680	107,865,109
Dec. ..	91,438,867	66,124,800	157,563,667
1914—			
Jan. ..	87,296,685	58,114,560	145,411,245
Feb. ..	78,371,852	60,374,720	138,746,572
Mar. ..	64,609,319	58,528,960	123,138,279
April .	70,337,001	65,582,720	135,919,721
May ..	84,342,641	72,508,800	156,851,441
June ..	106,110,663	74,527,040	180,637,703
July ..	Statistics suspended indefinitely.		

* Hamburg and Rotterdam stocks included

† Bremen stocks included.

PRODUCTION AND APPROXIMATE COST OF THE PRINCIPAL COPPER COMPANIES.

Compiled by Hayden, Stone & Company of Boston and New York.

Company—	1906.	1907.	1908.	1909.	1910.	1911.	1912	1913.	Cost per lb.
Ahmeek	.....	.....	6,280,241	9,198,110	11,844,954	15,196,127	16,455,769	9,220,874	7.6
Amalgamated	a224,000,000	a178,000,000	a198,000,000	a251,000,000	b	b	b	b	.....
Anaconda	94,963,835	63,055,661	64,869,176	75,860,194	c241,541,369	c234,590,424	c267,994,038	c241,983,323	10.25
Calumet & Arizona	46,515,159	40,380,853	49,972,538	51,955,717	54,163,596	49,945,905	53,108,628	52,987,383	7.5
Calumet & Hecla	95,100,610	93,898,963	78,980,466	81,178,326	78,652,618	74,130,977	67,856,429	45,016,890	9.8
Chino	.....	.....	.....	.....	.....	.....	27,776,088	50,511,661	8.
Copper Range	32,382,983	33,140,297	32,653,143	32,102,775	32,856,692	29,310,579	28,967,428	18,767,359	10.5
Granby	19,939,004	16,410,576	21,126,926	21,901,528	22,750,111	17,858,860	13,231,121	22,688,614	10.
Greene-Cananea	55,943,738	51,180,856	18,619,687	44,547,689	45,680,145	44,897,466	48,157,847	44,480,514	10.
Miami	.....	.....	.....	.....	.....	15,385,783	32,832,609	32,867,666	10.2
Mohawk	9,352,352	10,107,266	10,295,881	11,284,474	11,412,066	12,091,056	11,995,598	5,778,235	10.6
Nevada Consolidated	.....	.....	.....	34,527,823	62,772,342	78,541,270*	63,063,261	64,972,829	9.5
North Butte	32,865,907	16,520,062	36,929,028	33,102,153	25,267,092	24,816,669	26,480,123	28,318,321	9.8
Old Dominion	16,653,225	23,377,841	30,308,223	25,417,712	17,712,755	19,195,181	28,786,072	30,293,253	10.
Osceola	18,588,451	14,134,753	21,250,794	25,296,657	19,346,566	18,388,193	18,413,387	11,325,010	10.4
Phelps Dodge	.....	.....	.....	135,143,387	138,805,652	134,149,627	148,678,889	155,665,712	9.
Quincy	16,194,644	19,796,058	20,600,361	22,511,984	22,517,014	22,252,943	20,634,800	12,184,128	11.6
Ray Consolidated	.....	.....	.....	.....	.....	14,935,047	34,674,275	32,341,029	8.5
Shattuck-Arizona	2,541,680	5,091,542	301,359	1,787,649	14,751,000	4,596,973	2,510,339	13,219,514	7.2
Tennessee	11,319,591	12,599,019	14,464,585	14,058,954	12,429,009	13,808,940	13,252,634	13,493,140	11.3
United States Smelting	33,856,287	38,518,378	32,803,607	36,672,606	28,430,425	22,199,141	21,152,620	20,239,973	.....
Utah Consolidated	18,533,974	13,987,557	10,648,243	10,043,900	7,489,471	9,162,023	6,506,814	7,710,668	7.2
Utah Copper	.....	13,022,082	43,873,918	51,749,233	85,644,511	93,514,419	91,366,337	113,942,834	7.5
Wolverine	9,464,418	9,372,982	9,356,123	9,905,748	9,757,101	9,617,168	9,408,960	8,350,312	8.5

(a) Approximate.

* 15 months.

(b) Now controls through stock ownership about three-fourths of Anaconda's production.

(c) Does not include North Butte output which is treated at Anaconda smelters

TIN

THE TIN SITUATION.

After selling at 30c June 25th, July opened with Straits Tin at 31½. On the statistical position as shown July 1st, failing to confirm the predictions of the London Bear party, and it becoming evident that some of its members had decided to switch over to the Bull side, and on evidences of good home and foreign consumption, the market in a few days advanced to 32.60c, but eased off again 1c per lb. by the middle of the month. In the closing week of July the London market declined £7 to £8, on the weakness and unsettlement caused by the gathering war clouds, our market falling to 31c July 30th. But on the last day of July, the situation abroad became so serious on the outbreak of war, that all the Foreign Exchanges had to close, including the London Metal Exchange, and at present writing August 19th, they are still closed, and promise to so continue for some little while. Our market realizing that supplies from abroad on account of the war were threatened, jumped to 33½c, and in the next six days almost doubled in price to 65c on hardly any trading, but the wildest excitement from frightened consumers. Their fears were fully justified, as with hardly two weeks supply in stock in N. Y. and less than 800 tons afloat certain to arrive in time, it became doubtful if all the tin sold to consumers for August delivery could be declined in full—no shipments apparently possible from London as the English Government had placed an embargo on all shipments of metals from the British Isles.

The Directors of the N. Y. Metal Exchange found it necessary to rule, that although August deliveries in full might prove impracticable, that all contracts for delivery on or before August 10th must be filled by sellers, and again on August, then extending the date of deliveries that must be made to August 20th. It is certain they will rule that all deliveries for August shall be made, as it has been since demonstrated there is enough tin available to make these deliveries of August. A semi-panic with sellers developed in the spot price on news that some shipments would be made from England and market in three days dropped from 64c to sales at 39c. These shipments proved to be only some 250 tons and that there was no certainty that further lots would be allowed to be shipped by the Government even if they could be financed and the freight possible and the market recovered in another two days from 39c to 50c August 19th at which it stands today.

The position is that at present further supplies cannot be obtained from England. We are realizing what war is and the power of the Government of the country engaged to absolutely at their will stop the export of commodities. Also shipments being impossible from the East Indies, England will be shy in letting go out of the country this valuable metal until there is a certainty that other supplies will reach them. Als

TIN PRICES IN JULY.

	New York.	London prompts.	London C. I. F.
	Cts.	£ s d	£ s d
1	31.15	140 15 0	140 10 0
2	31.10	140 2 6	142 2 6
3	31.70	143 0 0	142 12 6
4	.....	.....	
5	.....	.....	
6	32.30	146 0 0	146 7 6
7	32.05	145 0 0	148 5 0
8	32.10	144 15 0	147 5 0
9	32.60	147 7 6	146 7 6
10	32.40	146 10 0	149 0 0
11	.....	.....	
12	.....	.....	
13	32.30	146 5 0	148 5 0
14	31.75	143 5 0	148 0 0
15	31.60	142 17 6	145 0 0
16	31.75	143 10 0	144 15 0
17	32.00	144 10 0	145 0 0
18	.....	.....	
19	.....	.....	
20	32.25	145 17 6	146 15 0
21	31.65	143 5 0	147 5 0
22	31.70	143 10 0	144 10 0
23	31.65	143 2 6	145 7 6
24	31.25	140 15 0	144 5 0
25	.....	.....	
26	.....	.....	
27	30.30	136 5 0	nominal
28	31.00	137 0 0	137 15 0
29	31.25	135 10 0	138 15 0
30	31.00	132 0 0	137 5 0
31	33.50	.....	.....
High	**34.00**	**147 10 0**	**149 0 0**
Low	**30.30**	**132 0 0**	**137 5 0**
Average	**31.75**	**142 6 5**	**137 19 0**

TIN.

MONTHLY TIN STATISTICS.

Compiled by New York Metal Exchange.

	July 1914.	June 1914.	July 1913.
Straits shipments			
To Gt. Britain	3,125	3,004	3,200
" Continent	1,170	1,351	834
" U. S.	680	1,285	765
Total from Straits	4,975	5,840	4,799
Australian shipments:			
To Gt. Britain	194	131	250
" U. S.	nil	nil	nil
Total Australian	194	131	250
Consumption:			
London deliveries	1,719	1,503	1,799
Holland deliveries	982	1,625	758
United States*...	3,900	3,650	3,900
Total	6,601	6,778	6,457
Stocks at close of month:			
In London	3,516	3,333	1,355
" " (Stand)	3,763	3,080	†
" Holland	272	1,005	2,503
" U. S.*	1,297	1,358	1,474
Total	8,648	8,776	5,332
Afloat at close of month:			
To London	4,221	4,324	4,688
" Holland	183	183	183
" U. S.*	2,115	2,744	1,860
Total	5,519	7,251	6,731
	July 1914.	June 1914.	July 1913.
Total visible supply	14,167	16,027	12,063

* Exclusive of Pacific ports.
† Not reported.

TIN AND SILVER. (Monthly Averages.)

	New York					
	Tin			Silver		
	1912.	1913.	1914.	1912.	1913.	1914.
Jan.	43.24	50.46	37.74	56.22	62.93	57.56
Feb.	43.46	48.73	39.93	59.04	61 64	57.50½
Mar.	42.86	46.88	38.08	58.37	57.87	58.07
Apr.	44.02	49.12	36.10	59.23	59.49	58.52
May	46.12	49.14	33.30	60.88	60.36	58.18
June	47.77	44.93	30.65	61.29	58.99	56.47
July	44.75	40.39	31.75	60.66	58.72	54.68
Aug.	44.75	41.72	.....	61.61	59.29	
Sep.	49.18	42.47	.....	63.08	60.64	
Oct.	50.11	40.50	.....	63.47	60.79	
Nov.	49.90	39.81	.....	62.79	58.99	
Dec.	49.90	37.64	.....	63.37	57.76	
Year	46.43	44.32		60 83	59.79½	

VISIBLE SUPPLIES.

Total visible supply of tin at the end of each month.

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	21,895	23,024	18,616	16,707	13,971	16,244
Feb.	20,746	21,288	17,260	14,996	12,304	17,308
Mar.	19,208	20,203	16,682	15,694	11,132	16,989
Apr.	18,825	17,932	14,441	11,893	9,822	15,447
May	19,208	18,998	15,938	14,345	13,710	17,862
Jun.	18,208	15,700	16,605	12,920	11,101	16,027
July	20,244	17,433	16,707	13,346	12,063	14,167
Aug.	19,182	17,943	16,619	11,285	11,261	.....
Sep.	21,419	18,999	16,672	13,245	12,943	.....
Oct.	18,724	18,183	14,161	10,735	11,857	.....
Nov.	20,025	18,875	16,630	12,348	14,470	.....
Dec.	20,918	17,194	16,514	10,977	13,893	.....
Av.	19,883	18,815	16,404	13,207	12,377	.....

SHIPMENTS FROM THE STRAITS.

Monthly shipments of tin from the Straits Settlements to Europe and the United States, as per Powell's returns:

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	5,733	5,895	4,290	4,018	6,050	5,290
Feb.	4,033	4,147	4,290	5,260	4,660	6,520
Mar.	3,380	2,877	4,510	5,150	4,810	4,120
Apr.	4,904	4,025	3,140	4,290	4,400	4,930
May	5,184	4,965	4,310	5,760	6,160	6,900
June	4,618	4,120	5,050	4,290	4,820	5,870
July	5,644	5,040	4,660	4,580	4,770	4,975
Aug.	4,702	5,700	4,680	5,210	6,030	.....
Sep.	5,081	4,220	5,150	5,430	5,160	.....
Oct.	3,801	4,480	4,350	4,450	5,020	.....
Nov.	5,510	4,840	5,070	5,600	5,560	.....
Dec.	5,835	4,270	5,970	4,980	5,110	.....
	58,425	54,579	55,470	59,018	62,550	
Av..	4,869	4,548	4,622	4,918	5,213	

CONSUMPTION IN THE UNITED STATES.

Monthly deliveries of tin in the United States exclusive of Pacific Coast.

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	3,200	3,500	3,200	3,700	3,700	3,600
Feb.	2,700	3,600	3,800	4,050	3,500	3,300
Mar.	3,900	4,000	5,100	4,000	5,900	4,450
Apr.	3,200	4,100	3,300	5,400	3,450	4,300
May	3,900	3,600	3,400	4,250	3,350	3,800
June	3,200	5,000	2,900	2,850	3,800	3,650
July	3,600	3,800	4,300	5,150	3,900	3,900
Aug.	3,300	3,700	3,800	4,300	3,600	.....
Sep.	3,200	3,300	4,200	3,600	3,100	.....
Oct.	4,100	3,350	3,500	3,850	3,700	.....
Nov.	4,000	3,800	3,100	4,300	2,800	.....
Dec.	3,200	3,600	3,700	4,050	3,100	.....
	41,500	45,350	44,300	49,500	43,900	
Av.	3,458	3,779	3,692	4,125	3,658	

ANTIMONY

as there is probably less than 200 tons of the metal here that does not belong to consumers or due them on August contracts the small lots that have left England last week will be only a "drop in the bucket".

It is difficult to believe tin will not fluctuate to perhaps much higher prices before the situation is cleared up, and that may take weeks if not months. This country in the past three years used an average of nearly 3,900 tons per month, the average price for which was nearly 44½c.

Under the circumstances 50c per lb. for tin is not such a famine price.

The market is all "at sea" where they wish more of this valuable metal was. Unless some great change takes place in the situation, it is inevitable that some of our factories must close, not on account of the price but because the metal won't be here to use.

THE ANTIMONY SITUATION.

July opened at 5½c for Hungarian grade or Chinese, and on extreme dulness the market weakened to 5.35c late in the month but on the last two days the market became nervous on the prospect of war, which developed into a rush to buy on the part of dealers and larger consumers, and the market advanced by leaps and bounds from 5.60 July 31st to 17.60 by August 10th. In other words, price trebled in 11 days, a record that we think will stand for a generation. Of course the excitement was caused by the shutting off supply of the metal from Europe, and the remembrance that the Russian-Japanese war the price went to 25c.

Since August 12th the excitement has died out, and on efforts to take profits the price has declined to 13c. But any buying movement could easily put prices much higher, as shipments cannot up to the present be made from England or the Continent, and the supply from China and Japan may be cut off, especially if Japan becomes involved in war. A large business has been done for August-September shipment from China and Japan at high prices, to come via. Pacific ocean and San Francisco and subject to Japan not being at war.

ALUMINUM, ANTIMONY AND SILVER PRICES IN JULY.

		Antimony			Silver	
	Aluminum.	Cookesons.	Halletts.	Hungarian.	New York.	London.
Day.	Cts.	Cts.	Cts.	Cts.	Cts.	d.
1.	17.62½	7.15	6.80	5.50	56¾	26⅛
2.	17.62½	7.15	6.80	5.50	56⅝	26⅛
3.	17.62½	7.15	6.80	5.50	56⅝	26⅛
4.	.....	....	....	....	....	26
5.	.....	....	....	....	....	....
6.	17.62½	7.15	6.80	5.50	56¼	25⅞
7.	17.62½	7.10	6.80	5.45	56⅜	25⅛
8.	17.62½	7.10	6.80	5.45	56¼	25⅞
9.	17.62½	7.10	6.80	5.45	56⅛	25⅛
10.	17.62½	7.10	6.80	5.45	55¾	25⅛
11.	.....	....	....	....	55⅞	25¾
12.	.....	....	....	....	....	....
13.	17.62½	7.10	6.80	5.45	55¾	25⅛
14.	17.62½	7.10	6.80	5.40	55⅛	25⅛
15.	17.62½	7.10	6.80	5.45	54⅞	25¼
16.	17.62½	7.10	6.80	5.40	55⅛	25⅜
17.	17.62½	7.10	6.75	5.40	54⅜	25⅛
18.	.....	...	....	....	54⅜	25⅛
19.	.....	....	....	....	....	....
20.	17.62½	7.10	6.75	5.40	54⅛	24⅛
21.	17.62½	7.10	6.75	5.40	53⅜	24⅛
22.	17.62½	7.10	6.75	5.40	53½	24⅝
23.	17.62½	7.10	6.75	5.40	54¼	24⅛
24.	17.62½	7.10	6.75	5.40	53⅞	24¾
25.	.....	....	....	....	53⅛	24⅛
26.	.....	....	....	....	....	....
27.	17.50	7.05	6.75	5.35	52⅝	24⅛
28.	17.50	7.05	6.75	5.35	53⅛	24⅛
29.	17.50	7.05	6.75	5.35	52¼	24
30.	17.37½	7.20	6.90	5.50	52¼	23¾
31.	17.37½	7.20	6.93¾	5.56¼	52¼	....
High	17.75	7.25	7.00	5.625	56.75	26.125
Low	17.375	7.00	6.70	5.30	52.25	23.75
Av...	17.587	7.111	6.791	5.437	54.68	25.219

ANTIMONY PRICES IN NEW YORK.

Highest, lowest and average price of Cooksons antimony in New York.

	Highest.	Lowest.	Average.
1913—			
Year	9.87½	7.25	8.51½
1914—			
January	7.37½	7.25	7.31
February	7.25	7.20	7.24
March	7.25	7.20	7.23
April	7.25	7.15	7.22
May	7.35	7.15	7.29
June	7.35	7.10	7.21
July	7.25	7.00	7.11

SPELTER.

THE SPELTER SITUATION.

July opened at 4.85 E. St. Louis, and was dull at this basis all through the month slightly improving to 4.90, but with the opening of August, a demand set in from England caused by that country being shut off from her supplies from the Continent. This was grasped as a handle to start a manipulation and advance in price by some of the Producers, and price rapidly advanced to 5.65 f.o.b. E. St. Louis and shows signs of going higher. It is estimated that at least 5,000 tons has been sold for shipment to England by earliest possible freight, and there is still a large enquiry from that quarter. The American consumers were free buyers below 5c. for future delivery and are also believed to have good stocks on account of the recent unsatisfactory condition of the galvanized iron trade.

The mid-year spelter statistics of the U. S. Geological Survey are published in full in this issue. They proved a great surprise to the majority of the trade inasmuch as they show that the production and consumption of spelter was about normal during the first half of this year. Those who had been given to understand that the production of spelter had been curtailed will be astounded to hear that the domestic output was the largest on record and 5,379 tons greater than in the last half of 1913. There was also an increase in the production of spelter from foreign ores of 3,116 tons so the total output was 8,595 tons greater than the preceding six months.

The following table giving the production by half years together with the average price of spelter during the corresponding periods shows that the decline in prices has not forced a curtailment in output. The exhibition is a strange one and comments by the producers would be interesting:

	—Production—			Average Spelter Price
	Domestic	Foreign ore	Total	St. L.
1911—				
Jan.-June	135,061	5,135	140,196	5.36
July-Dec.	136,560	9,970	146,530	6.04
1912—				
Jan.-June	159,952	6,544	166,496	6.68
July-Dec.	163,955	8,355	172,310	7.21
1913—				
Jan.-June	171,455	9,058	180,213	5.89
July-Dec.	166,117	340	166,463	5.33
1914—				
Jan.-June	171,499	3,562	175,078	5.08

The above shows that more spelter was produced in the first half of 1914 when the price was 5.08 East St. Louis than in the last half of 1912 when the price was 7.21!

Then again nearly everyone expected that the domestic deliveries of spelter this

SPELTER AND LEAD PRICES IN JULY.

	SPELTER				LEAD			
	New York	St. Louis	London		New York	St. Louis	London	
	Cts.	Cts.	£	s	Cts.	Cts.	£	s d
1	5.00	4.85	21	12 6	3.90	3.77½	19	0 0
2	5.00	4.85	21	10 0	3.90	3.77½	19	0 0
3	5.00	4.85	21	10 0	3.90	3.77½	19	0 0
4	....	....	.....		....			
5								
6	5.05	4.85	21	10 0	3.90	3.77½	19	5 0
7	5.05	4.85	21	10 0	3.90	3.75	19	5 0
8	5.00	4.82½	21	10 0	3.90	3.75	19	7 6
9	5.00	4.82½	21	10 0	3.90	3.75	19	10 0
10	5.00	4.82½	21	10 0	3.90	3.75	19	10 0
11								
12								
13	5.00	4.85	21	10 0	3.90	3.75	19	5 0
14	5.00	4.85	21	10 0	3.90	3.75	19	0 0
15	5.00	4.80	21	12 6	3.90	3.75	18	2 6
16	5.00	4.80	21	10 0	3.90	3.75	19	2 6
17	5.00	4.86	21	10 0	3.90	3.75	19	0 0
18								
19								
20	5.00	4.80	21	10 0	3.90	3.75	19	0 0
21	5.00	4.81¼	21	12 6	3.90	3.75	19	5 0
22	5.05	4.85	21	12 6	3.90	3.75	19	2 6
23	5.05	4.87½	21	12 6	3.90	3.75	19	0 0
24	5.05	4.85	21	12 6	3.90	3.75	18	12 6
25								
26								
27	5.10	4.90	21	12 6	3.90	3.75	18	10 0
28	5.10	4.90	21	12 6	3.90	3.75	18	12 6
29	5.10	4.90	21	15 0	3.90	3.75	18	15 0
30	5.20	4.85	21	15 0	3.90	3.77	18	15 0
31	5.05	4.85			3.90	3.75		
High	5.15	4.95	21	15 0	3.90	3.775	19	10 0
Low	4.95	4.80	21	10 0	3.90	3.725	18	10 0
Av.	5.028	4.841	21	11 4	3.90	3.752	19	1 0

* New York lead price outside market.

SPELTER.

year had been much smaller than in the last half of 1913 whereas it is shown that they were 16,976 tons or 12 per cent greater. It is difficult to reconcile this showing with what took place in the iron and copper trades for if the consumption of iron decreased 15 to 20 per cent it is unreasonable to suppose that the consumption of spelter increased 12 per cent, statistics or no statistics. It may be, however, that spelter consumers have been replenishing their stocks and that the deliveries represented partly the consumption and partly the accumulation of supplies at consumers' works.

The stocks of spelter at the smelters increased 23,380 tons during the half year and on June 30th amounted to 64,039 tons, a record which has never before been approached. The fluctuations in the stocks during the past four years are shown below:

	Tons
January 1, 1911	23,232
June 30, 1911	17,788
January 1, 1912	9,081
June 30, 1912	6,414
January 1, 1913	4,522
June 30, 1913	21,856
January 1, 1914	40,659
June 30, 1914	64,039

WATERBURY AVERAGES.

The Waterbury averages for the month of July, 1914, were as follows:

Lake Ingot Copper	14.12½
Electrolytic Ingot Copper	13.62½
Brass Mill Spelter	5.26

	Copper — Lake	Copper — Electro	Spelter	
	1913.	1914.	1914.	1913.	1914.
Jan.	17.00	14.75	.....	7.56	5.54
Feb.	15.50	15.12½	.....	6.81	5.70
Mar.	15.12½	15.00	14.50	6.56	5.59
Apr.	15.75	14.87½	14.37½	6.08	5.50
May.	15.87½	14.75	14.25	5.77	5.38
June.	15.87½	14.37½	13.87½	5.50	5.37
July.	14.75	14.12	13.62½	5.61	5.26
Aug.	15.62½	....	....	5.99	....
Sep.	16.87½	....	....	6.13	....
Oct.	16.87½	....	....	5.74	....
Nov.	16.25	....	....	5.60	....
Dec.	15.00	....	....	5.44	....
Year.	15.83	.....	....	6.06½	....

SPELTER (Monthly Averages.)

	— New York —			— St. Louis —		
	1912.	1913.	1914.	1912.	1913.	1914.
Jan.	6.55	7.23	5.33	6.39½	7.04	5.14
Feb.	6.70	6.49	5.46	6.53	6.25	5.27
Mar.	6.93	6.29	5.35	6.74	6.08	5.15
Apr.	6.87	5.79	5.22	6.66	5.59	5.03
May	6.89	5.51	5.16	6.71	5.31	4.96
June	7.05	5.23½	5.12	6.85½	5.05	4.95
July	7.23	5.41	5.03	7.04	5.23	4.84
Aug.	7.13	5.80	....	6.94	5.64	....
Sep.	7.55	5.83	....	7.37	5.65	....
Oct.	7.61	5.47	....	7.39	5.27	....
Nov.	7.50	5.34	...	7.32	5.15	....
Dec.	7.36	5.22	...	7.19	5.03	....
Year	7.11	5.80	....	6.93	5.61	....

COMPOSITE METAL PRICES.

Computation for August 3, 1914.

Pounds.	Metal.	Price.	Extension.
2½	Spelter (St. Louis)	4.82½	12.062
4	Lead (St. Louis)	3.72½	14.900
3	Copper (Electro)	12.75	37.250
½	Tin (New York)	50.00	25.000
10	pounds		89.212
	One pound		**8.9212**

Composite metal prices for each day this month were as follows:

Aug. 4	9.2600
" 5	9.4412
" 6	9.4849
" 10	9.7529
" 11	9.7650
" 12	9.7462
" 13	9.5649
" 14	9.1062
" 17	8.7550
" 18	9.0562
" 19	9.0300
" 20	8.9431

Monthly averages.

	1910.	1911.	1912.	1913.	1914.
April	8.568	8.795	10.277	10.198	8.844
May	8.413	8.795	10.468	10.163	8.678
June	8.362	9.154	11.014	9.648	8.431
July	**8.338**	9.100	11.043	9.398	8.345
Aug.	8.479	9.188	11.092	10.025	.....
Sep.	8.569	8.928	11.575	10.350	.....
Oct.	8.747	8.990	11.596	10.029	.....
Nov.	8.888	9.306	11.372	9.590	.....
Dec.	8.881	9.675	11.219	9.053	.....
Year	8.665	9.046	10.750	9.977	.....

LEAD

THE LEAD SITUATION.

The market was quiet all during July at the Trust price of 3.90 N. Y. and this has been the case up to present writing August 18th. So far the war has had no effect on the Lead market, except to disorganize the Silver situation which if no relief comes is certain to lessen the production of Lead, also there is a prospect of a demand from England owing to the difficulty of getting supply from their usual sources.

The world's production and consumption of lead showed that in 1913 England produced only 30,500 metric tons and consumed 191,400 tons. In 1913 England imported no less than 207,402 metric tons of lead, but unlike in the case of spelter she does not get her supplies from those nations who are now engaged in war. England gets the bulk of her supplies from Spain and Australia and while the Australian shipments are liable to be suspended there is no reason why the shipments from Spain should not come along regularly so long as England has the German fleet bottled up in the North Sea. We expect, however, that she will also buy in this country and as a matter of fact some small shipments were sent out from here on steamers sailing last week.

The price of spot lead in London today, (August 18th), is £23 which less the 2½ per cent discount, is equal to 4⅞c per pound, or one cent a pound above the price in this market. As the freight and insurance from New York to London or Liverpool figures out less than ½c per pound the possibilities of a good export business seem favorable.

There is a better demand at present, and the indications are that prices will improve unless the Trust decides otherwise.

LEAD (Monthly Averages.)

	—New York*—			—St. Louis—		
	1912.	1913.	1914.	1912	1913.	1914.
Jan.	4.44	4.35	4.11	4.34	4.20	3.99½
Feb.	4.04	4.35	4.06	3.99	4.20	3.95
Mar.	4.07	4.35	3.97	4.06	4.21	3.83
Apr.	4.20	4.40	3.82	4.14	4.25½	3.70
May	4.20	4.36	3.90	4.09	4.22	3.81
June	4.39½	4.35	3.90	4.31	4.21	3.80
July	4.73	4.37	3.90	4.60	4.25	3.75
Aug.	4.56₃	4.63	....	4.46	4.56	....
Sep.	5.05	4.75	....	4.94	4.62	....
Oct.	5.10	4.45	....	4.91	4.31	....
Nov.	4.69	4.34	....	4.50	4.18	....
Dec.	4.36	4.06	....	4.19	3.94	....
Year	4.48½	4.40	....	4.38	4.26	...

* Trust price.

World's Production and Consumption of Metals.

(Continued from page 324.)

Spelter.

	Production.	Consumption.
Germany	283,113	232,000
Belgium	197,703	76,400
Holland	24,323	4,000
Great Britain	59,146	194,600
France	21,707	10,900
Spain		40,400
Austria	71,023	5,900
Italy		81,000
Russia	7,610	33,300
Norway	9,287	(a)
United States ...	320,283	313,300
Australia	3,724	(a)
Other countries..	.....	20,900
Total	997,900	1,012,700

(a) Other countries.

Tin.

	Production.	Consumption.
Straits shipments	65,640	.....
Great Britain		24,400
Native ores ...	5,300	.....
Foreign ores...	16,700	.....
Germany (a)	11,500	19,300
France	1,200	8,300
Banca sales	15,173	.....
Billiton sales	2,243	.....
Australia	4,870	1,400
China (exports)..	6,000	2,400
Bolivia (refined tin)	300	.....
Austria-Hungary.	.....	3,200
Belgium	.....	2,300
Russia	.....	2,700
Italy	.....	2,900
Switzerland	.....	1,400
Spain	.....	1,300
Scandanavia	.....	1,600
Holland	.....	250
Rest of Europe ..	.....	1,200
United States	.....	45,000
Rest of America..	.....	3,400
Rest of world ...	.....	3,800
Total	128,900	124,900

JOPLIN LEAD AND ZINC ORE MARKETS.

The zinc ore market showed a marked decrease both in activity and in prices during the month. Opening week there was a very perceptible lowering in base offerings the succeeding weeks and closed at a figure ranging from $34. to $38.50. The very close of the month however noted a tendency toward greater strength and producers now anticipate better prices during August and September.

Whatever characterized zinc blende also characterized the calamine market. It moved in accordance with blende although showing better resistance to the downward trend of the market. The market closed for this class of ore at $17. to $21.

Shipment were again small. Blende ores to the amount of 17,986 for the month were shipped out. This is an average of less than 4,500 per week. Calamine reached but 1,914 tons or but 478 tons per week. The month showed a decided downward trend both in production and output. As compared with the seven months of 1913, there has been a decrease of 5,568 tons of blende ore shipments and an increase of 579 tons of calamine ore. The stocks compare 12,000 tons for 1914 against 4,000 tons in 1913.

Lead ore for the month showed a total of 2,831 tons shipped or 709 tons per week. The average price remained almost constant, being between $45. and $46. for the entire period. The month closed very firm at $46.

Due to the sudden collapse in prices at the first of the month, a number of the large producers shut down their properties until there was a resumption of prices above $40. base. This curtailment has been expected for many weeks and the wonder is that it did not take place much earlier. The evident fact that the price paid for zinc ore is now below the average for the whole field has been expected to force down all the low grade ore producers whose cost of production is known to be from $40 to $45. Many have piled up surplus stock in hope of an advance, but the limit of borrowing has been reached in some cases. It is believed that production is now approximately 4,750 tons per month.

The following table gives the average base price of Joplin zinc blende ores for 60 per cent zinc and the spelter content less 15 per cent loss in smelting is figured at the average price of spelter. The difference between these figures represents the smelting margin.

Year	Average spelter price	Average ore price	Value 1020 lbs. spelter	Zinc Smelting Margin
1901	$3.80	$24.21	$39.68	$15.47
1902	4.64	30.73	47.33	16.60
1903	5.25	34.44	53.55	19.11
1904	4.97	37.40	50.69	13.29
1905	5.79	47.40	59.06	11.66
1906	6.10	44.82	62.22	17.40
1907	5.90	44.36	60.18	15.82
1908	4.62	36.63	47.12	10.49
1909	5.39	43.98	54.98	11.00
1910	5.42	42.66	55.28	12.62
1911	5.70	41.45	58.14	16.69
1912	6.92	55.58	70.58	15.00
1913	5.61	45.05	57.22	12.17

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THE CAMPAIGN IN BUSINESS.

The past month will go on record as the most remarkable in the annals of politics and business, and probably may never again be duplicated in the history of the world. It has been a disaster in which every civilized country has had to bear a share, and the end is not yet. All we do know is, that the shock of a sudden collapse in international business, credit and capital has been withstood, without anything like what we would have been led to expect, had the proposition been laid before us as a wild possibility.

There is a fundamental reason why this has been so, and to our mind it is, that the business world has appreciated that the matter was a contest to be fought out to the finish, once and for all, between the ideals of the past, **autocracy**, (although its exponent was one of the most enlightened and scientific nations), and the ideals of the present, and the hope of future, **democracy**.

Business stands for progress and democracy, and its sympathies and confidence has therefore been arrayed on that side. The business world has been quite assured, that no matter how severe and prolonged the contest, and no matter the chaos and unsettlement meanwhile, in the end the ideals on which the business mind are fixed, and the atmosphere in which it can best flourish must conquer. There has therefore been no discouragement, but instead hopeful confidence, and every business man knows what a powerful stimulant that is, when called upon to meet a crisis in his own affairs. The whole mind of business has been unanimous in this confidence, and it has therefore carried us through without panic or anything like the demoralization that might

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otherwise have taken place.

It has been demonstrated that business under the leadership of our Captains of industry is quite as efficient, strategetic, unselfish, and as well organized, as those military organizations whose operations have absorbed our daily interest of late. That business was quite as ready as they were to meet an emergency, and when the history of the war is read and studied in the future, we are inclined to think the way in which business interests here and abroad have conducted their compaign, will excite as much praise and astonishment as the operations of any of the combatants. Our sieges, battles, advances and retreats have been quite as ably handled, and on their conduct has hung greater issues in the welfare of the world's inhabitants, than those of the battlefield.

In the campaign our country has more than done its share, and with a coolness that has been remarkable, which has not proceeded from lack of appreciation of awful difficulties, but from confidence in ourselves, and the business machinery and organization we have built up, and the leaders who we have been satisfied to follow. Also our previous years of hard times or reaction had put us in the soundest possible position to meet such a crisis.

But the contest is still one which requires the exercise of the same business virtues, courage and abilities that we have shown. When the end comes, it will find us, less impoverished and exhausted than our foreign business allies, in which we include the whole business world, and in a position to reap more fully than any other country the blessing of peace, business expansion, and progress.

It is a new world of opportunity that will begin then, and it will be our own fault if with the natural advantages we possess, and the new ones that will be then opened to us, America does not take the leadership of the business world.

THE RATE DECISION.

Although the long expected rate decision finally fell flat, and has provoked but little discussion, time enough has elapsed to obtain a fairly clear perception of how it is [illegible] monly expressed is that the decision was a disappointment, the railroads securing less than was expected.

Measured in dollars this view is doubtless correct, but we have never been able to believe that the railroads engaged in so extensive a contest for this advance having in mind simply the $50,000,000 a year increased revenue which the demand was computed to involve. The sum is really a small one for the railroads, and we have felt that it was the principle, rather than the amount of money, which the railroads regarded as at stake. The increase in revenue would not materially increase earnings, or in itself make railroad securities much more valuable. The value of railroad securities depends largely upon stability and promise for the future. Time after time the railroads had tried to secure rate advances and had failed, until it began to look as if they were up against a stone wall. It became a question whether there were any conceivable conditions under which the Interstate Commerce Commission would sanction any general advances, and we think it was for the recognition of such a principle, rather than for any specific increase in revenue at this particular time, that the railroads contended.

If investors in railway securities know that if in the future conditions as to wages, cost of commodities, etc., make railroad operations less profitable the commission will be prepared to furnish relief, their confidence in railway securities will increase by much more than it would by the mere granting of $50,000,000 increased revenue, or even $100,000,000, if that and nothing more were involved.

Hence it would seem that the decision rendered August 1st in the famous rate case should be studied qualitatively rather than quantitatively. The specific increases granted may amount to only $10,000,000 or $15,000,000 a year, instead of $50,000,000, but the recognition that increased revenue is desirable is fairly clear, for thus much of an increase is actually given, and reference is made to increases in revenue which may be obtained by other means than advancing the fundamental rates. Furthermore, the decision is clear that the railroads did not establish [illegible] They

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claimed they were going to establish the needs for increased revenue, from which it may be inferred that if a better case is presented at some time in the future, under other conditions, better treatment still will be accorded. Hence we think there is good reason to assume that in the long run the rate decision just rendered will prove an asset to the railroads and not a liability.

IRON ORE PRODUCTION.

The Geological Survey has announced final figures of the iron ore production in 1913. The increase in 1913 over 1912 is 6,820,290 gross tons, while the gain over the previous record year, 1910, is 5,090,703 tons.

Statistics of iron ore production are not an accurate index year by year of the amount consumed, or even the amount shipped, as stocks are carried at mines, on docks and at blast furnaces. The Survey in recent years has gathered separate statistics of the amount of ore marketed, this being substantially the shipments. The figures for the past three years are given below, with the annual differences:

1911	Mined	43,876,552
	Marketed	41,092,447
	Excess mined	2,784,105
1912	Mined	52,377,362
	Marketed	57,017,614
	Excess marketed	4,640,252
1913	Mined	61,980,437
	Marketed	59,643,098
	Excess mined	2,337,339

For the three years combined the ore mined and the ore marketed balance fairly well, the excesses mined in 1911 and 1913 being only 481,192 tons more than the excess marketed in 1912. During the three years the stocks at mines appear to have increased 481,192 tons. The stocks at mines at the close of 1913 were approximately 12,500,000 tons. In addition there were stocks at docks, the stocks on Lake Erie docks December 1, 1913, being 9,261,676 tons, while there were stocks at other docks including those at upper lake ports. Then there were unusually heavy stocks at the blast furnaces, as 1913 had not turned out as good a year as expected. Altogether it is safe to conclude that at the end of 1913 there was above ground considerably more than 25,000,000 tons of iron ore, and possibly not far from 30,000,000 tons.

Despite the efforts to develop iron ore deposits elsewhere than in the Lake Superior region, on account of large advance in prices of Lake Superior ores and ore deposits in the past 15 years, there was a slight increase even in 1913 in the proportion of Lake Superior ore mined, compared with production elsewhere. The proportions, in percentages, have been as follows in selected years:

	Lake Superior.	All Other.
1895	64.4	35.6
1900	74.6	25.4
1905	78.4	21.6
1910	72.6	27.4
1911	81.0	19.0
1912	84.1	15.9
1913	84.5	15.5

The year 1910 was exceptional, with its large proportion of ore mined outside the Lake Superior region, since the average of outside mining in 1908 and 1909 was 20.0 per cent. Thus on an average there has been a constant increase from the opening in 1854 clear up to date in the proportion of iron ore mined in the Lake Superior region. There has been an extremely slow increase in the outside production. In 1890 the outside production was 7,092,012 tons, and it was not until 1901, eleven years later, that this tonnage was exceeded. The banner year, 1910, showed only 10,560,991 tons, an increase of a trifle less than 50 per cent in 20 years, and the 1910 output was not touched in 1913, whereas the Lake Superior region showed a gain of nearly 25 per cent in the three years.

Iron ore production for six years past has been as follows:

	Lake Superior.	All Other.	Total.
1908 ...	28,108,079	7,816,692	35,924,771
1909 ...	41,863,635	9,291,802	51,155,437
1910 ...	46,328,743	10,560,991	56,889,734
1911 ...	35,550,225	8,326,327	43,876,552
1912 ...	46,368,878	8,781,269	55,150,147
1913 ...	52,377,362	9,603,075	61,980,437

BUSINESS TRENDS.

IDLE RAILWAY CARS.

The net surplus of idle freight cars on the railroads of the United States and Canada was 8,819 less on September 1st than it was on August 15th, according to the regular fortnightly bulletin issued by the American Railway Association. The report shows that on the first of the present month there was a net surplus of 163,326 freight cars, compared with 172,145 on August 15th.

Normally car equipment should come into greater use at this season, so a decrease was to have been expected. The significant point is that the reduction in idle equipment betwen August 15th and September 1st is twice as great as in the same period last year.

The net surpluses on various dates since January 1st, 1914, are compared in the following table:

1914		May 1	228,879
Sep. 1	163,326	Apr. 15	212,869
Aug. 15	172,145	Apr. 1	139,518
Aug. 1	196,665	Mar. 15	‡124,865
July 15	226,541	Mar. 1	153,907
July 1	219,545	Feb. 15	197,052
June 15	232,334	Feb. 1	209,678
June 1	†242,572	Jan. 15	214,889
May 15	238,642	Jan. 1	188,850

NEW INCORPORATIONS.

According to statistics compiled by the Journal of Commerce and Commercial Bulletin papers filed in the Eastern States last month represented $50,600,000. This is the smallest monthly total in many years, with the exception of September, 1913, when it was $42,750,000. In August a year ago the total was $55,250,000 and two years ago $200,100,000. The grand total of all companies chartered last month with a capital of $100,000 or over, covering all States, including those of the East, amounted to $95,785,000, against $148,161,500 in July. In August last year it was $118,179,000.

It is quite evident that the unsettled domestic conditions prevailing since the outbreay of the European war are playing an important part in holding in check the promotion of new enterprises.

The following is a summary of total incorporations in the Eastern States covering concerns with an individual capitalization of $1,000,000 or more by months:

	1914.	1913.	1912.
Jan.	$120,050,000	$332,450,000	$210,520,000
Feb.	51,575,000	191,500,000	166,300,000
Mar.	57,700,000	166,030,000	159,578,000
April.	136,185,000	198,718,000	281,457,000
May	62,700,000	172,200,000	140,284,000
June	70,050,000	79,550,000	280,170,000
July	68,700,000	83,650,000	253,518,000
Aug.	50,600,000	63,500,000	164,500,000
Total	$617,560,000	1,287,598,000	1,656,327,000
Sept.	.....	42,750,000	115,050,000
Oct.	.....	70,856,300	169,495,000
Dec.	.....	55,250,000	200,100,000
Nov.	.....	77,800,000	154,200,000
Total	.....	$1,534,254,300	$2,295,172,000

COMMODITY PRICES.

The following table gives "Bradstreets" index numbers (the totals of the prices per lb. of ninety-six articles, since Jan. 1, 1909:

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	8.263	9.231	8.836	8.949	9.493	8.885
Feb.	8.302	9.073	8.766	8.958	9.459	8.861
Mar.	8.217	9.111	8.603	8.902	9.405	8.832
Apr.	8.316	9.200	8.522	9.098	9.297	8.756
May	8.302	9.039	8.458	9.270	9.139	8.622
June	8.396	8.911	8.529	9.102	9.072	8.622
July	8.457	8.925	8.594	9.112	8.952	8.656
Aug.	8.504	8.822	8.657	9.159	9.011	8.708
Sep.	8.591	8.952	8.819	9.215	9.100	9.757
Oct.	8.748	8.927	8.806	9.451	9.152	
Nov.	8.964	8.877	8.892	9.478	9.225	
Dec.	9.126	8.784	8.982	9.546	9.229	
Year	8.515	8.989	8.713	9.186	9.211	

BUILDING OPERATIONS.

Record of building expenditures at leading American cities, according to Bradstreets, reporting monthly, quarterly and yearly from January, 1913 down to and including August, 1914.

	Cities.	1914.	1913.	
Jan.	146	45,999,862	55,514,979	D. 17.1
Feb.	148	51,376,112	62,784,999	D. 18.1
Mar.	150	85,610,997	83,388,638	I. 2.6
1st quarter		181,986,971	201,688,616	D. 9.7
Apr.	150	83,364,426	97,405,899	D. 14.4
May	146	82,761,751	86,809,963	D. 4.6
June	150	85,532,913	82,999,953	I. 3.0
2d quarter		251,659,090	267,215,847	D. 5.8
6 months		433,646,061	468,904,463	D. 7.5
July	152	82,857,507	78,786,703	I. 5.1
Aug.	143	62,062,204	64,619,339	D. 3.9

SOUTH AMERICAN TRADE OUTLOOK.

In the hope of correcting prevalent misconceptions regarding the trade of the United States with South America and opportunities for its extension, we present to our readers a statement issued by the National Foreign Trade Council, calling attention to certain fundamental conditions surrounding that trade, which must be improved in order to accommodate existing trade, to say nothing of future business.

The Chairman of the Council is James A. Farrell, President of the United States Steel Corporation, and it consists of 35 nationally representative manufacturers, merchants, railroad and steamship men and bankers, representing all sections of the country and collectively standing for the general interest of all elements engaged in foreign trade.

At the outbreak of the war, a Standing Committee of New York members was appointed to consider foreign trade problems as they arose. As a result of the Committee's observations the following statement is issued:

STATEMENT

Under the influence of glowing generalities as to the "wonderful opportunities" for extension of United States trade with South America, the public should not lose sight of certain fundamental conditions surrounding that trade, which must be improved before existing trade can be handled, to say nothing of **greater business** in the future. Exports to, and imports from, South America have been halted by the confusion into which the war threw European shipping and European banking, on which the expeditious transaction of our South American trade long has depended.

The United States and the ten republics of South America, by reason of their natural products and industry, occupy towards each other a naturally reciprocal position. Properly cultivated, a very large and mutually profitable trade can be developed. It will be necessary, however, to build from the ground up. The prizes of Latin-American trade will not fall gratuitously into our hands. Every nation now enjoying a large per capita foreign trade, has attained it only by systematic effort and sacrifice.

The South American trade problem can not be appreciated without analysis of its fundamental character.

Characteristics of South American Trade.

The normal elements of South America's foreign trade have been:

1. Agricultural, forest and mineral exports, constituting raw materials necessary to the life and industry of Europe and the United States.

2. Imports of manufactures.

3. European investments in South America, creating a market for European manufactures.

4. European banking, providing these investments and handling South America's trade with the United States, as well as with Europe.

5. European steamship lines, trading houses, and sales organizations serving a part of the United States' as well as Europe's South American trade.

6. A limited number of the United States' ships, trading houses and sales organizations.

Influence of the War.

The effect of the war upon this commerce has been

1. Curtailment of the foreign market for South American products, due either to diminished purchasing power of the warring nations, or to their inaccessibility, as in the case of Germany.

2. Curtailment of South America's source of supply of manufactures, as in Germany.

3. Shrinkage of South American purchasing power through curtailment of European investment in South America, entailing suspension of transportation, industrial, agricultural and mining projects, which normally consume foreign manufactures.

4. Dislocation of London exchange, the universal currency of South American foreign trade and declaration of moratorio, rendering either impossible, or expensive, payments or collections in London bills of exchange.

5. Interruption of steamship communication, due to German marine's disappearance from the sea, and, for a time, prohibitive war risks.

As a primary fact South America's purchasing power is thus seen to dwindle toward the point represented by the value of her exportable products. A certain proportion of these must be utilized to meet her obligations of interest on European loans

Although the United States, in the year ended June 30, 1914, purchased from South America merchandise to the value of $222,677,075, and sold in return only to the value of $124,539,909, an adverse trade balance of $98,037,066, our Southern neighbors may naturally seek expansion of their exports in this direction. The future alone can determine whether this is possible. It is noteworthy that one commodity, coffee during the last fiscal year constituted, in value, one-third of our total imports from South America. And this was a decline from the coffee import figures of 1912 and 1913.

South America's Buying Power.

How great an opportunity has the United States to sell South America merchandise hitherto bought in Europe? Any answer must take into consideration the already proven fact that European war diminishes South America's purchasing power because it reduces European investment. Whether the curtailment of European supply of manufactures exceeds the curtailment of this purchasing power will largely determine the extent of our opportunity to increase exports to Argentina, Brazil, Chile and other states.

Germany, as a source of supply of manufactures, is now cut off, but this, by no means, delivers German trade into our hands. The United Kingdom, although at war, impressively keeps open and travelled its world trade routes and with banking and shipping resoures that we utterly lack, appreciates all opportunities for the capture of German trade.

Nor is European trade easily uprooted even by the shock of war. British commerce with South America is well grounded on vast investments in railways, industrial, agricultural and mining enterprises, and government loans, an estimated total on January 1, 1913 of $3,376,495,837, yielding about $160,000,000 in annual interest.

Trade naturally follows investment, but British, French and German investors have not rested content with the natural outworking of this economic law. In recent years they have systematically fortified their South American trade by stipulating that materials from the country providing the funds, be preferred in the resultant construction and equipment contracts. Thus British-financed railroads often use exclusively British rails, rolling stock, etc., power plants built with German capital are equipped only with German electrical machinery, etc. The practice closed many commercial doors to the United States.

Will they remain closed? This depends upon whether European capital continues almost exclusively to supply the funds for continuance of these projects. Should the burdens of war decrease Europe's investing ability, or even regardless of that contingency, the investors of the United States may well conclude that judicious investment in South American railways, industries, plantations, and mines, not only offers adequate profits but will open and protect new markets for manufactures and certain natural products such as oil, coal and lumber. A great part of funds thus loaned need never leave the country but will be expended here for American manufactures.

While the American public is not educated to foreign investment, and the country is still a borrower in the world's financial market, it should be remembered that the new tariff has precipitated many American industries into world competition. Our domestic prosperity, the welfare of millions of workers, increasingly depends upon the success of export trade. With our commercial operations thus forced to encircle the globe, capital will scarcely remain cloistered within our own borders.

Banking Facilities.

Not only does our future in South America depend upon improvement of our banking facilities, but the transactions of business already obtained has been halted by the disruption of London exchange. For years London has been South America's banker, and ninety day bills on London the medium of settlement of export and import business not only with Europe but with the United States as well.

Having so long depended upon London banking mediation, which includes not only British, but German and French branch banks at London, exporters and importers here and in South America, have great difficulty in establishing direct banking relations.

We owe South America far more than South America owes us. The trade balance is heavily adverse to the United States. Since South American interests owe heavily at London, they naturally desire that the United States pay at London for its heavy imports of coffee, rubber, nitrates, etc. Im-

porters therefore, are obliged to transfer funds to London, a difficult and expensive process at the prevailing high rates of exchange. Of course this money is not shipped on from London to South America. London discharges the obligation in British manufactures, thus effectively alienating to the United Kingdom the selling power which we should derive from heavy purchases of South American merchandise. In a healthful trade the United States should more largely discharge its indebtedness to South America by increased exports. Obligations for imports payable at London not only prevent this but siphon gold from our banks to Europe.

The most conspicuous evidence of our disadvantage is seen in the trade with Brazil. During the last fiscal year American imports from Brazil were valued at $101,329,073 but we sold to Brazil in return merchandise valued at only $29,963,914. Vessels have delivered coffee, rubber and other Brazilian products in the United States and loaded with cotton and grain which they have transported to Great Britain, loading in British ports with British manufactured goods which were carried to South America, thus completing the triangle.

While we are willing and able to pay for South American products our manufacturers and trading houses are reluctant to ship goods to the sister republics, many of whom have declared moratoria. Manufacturers and exporters declare they do not know where their money is coming from. As a matter of fact, the exporter's money ought to come from his next door neighbor, the importer of South American merchandise.

We are certainly at a disadvantage if our indebtedness is used to pay for British manufactures exported to South America, while our own manufactures remain congested on our docks for lack of sound credits. The necessity is apparent of machinery to bring together the importer of South American products and the exporter of our manufactures. Toward this goal various banks are seeking to work but the field is new. The task is complicated by the lack of co-operation between exporters and importers as well as by the absence of established American banks in South American financial centers. The new banking law, fortunately, permits the establishment of foreign branches of national banks. The National City Bank has availed itself of this authority but the authorization of national banks to deal in acceptances of foreign paper is not yet effective. So long as it is not in operation a serious difficulty confronts the establishment here of an international discount market strong enough to support direct exchange with the neutral markets of South America and the Far East.

Trade Independence Vital.

The war has demonstrated that foreign trade is a vital element in our domestic prosperity. The war has disclosed a fundamental weakness of our foreign trade's dependence upon European banking. Although neutral, our commerce has suffered, through this dependence, the rigors of war.

With the gradual resumption of ocean transportation and the control of the sea by England the equilibrium of London exchange may again be restored. Nothing is more fallacious, however, than to await this restoration as the sole remedy of the disruption of oversea commerce.

What the war has in store is uncertain Blind dependence upon the banking mediation of any belligerent is hazardous. Our greatest opportunity lies in the establishment of those direct financial relations and the American steamship connections necessary to assure the economic independence of the trade we already have and of that which we hope to gain with increased banking and steamship facilities of our own it should be possible to pay for a greater proportion of our imports in merchandise of our own production and to retain in the United States a greater proportion of the funds due for imports.

While individual opportunities will offer themselves to our exporters, the general security and prosperity of the South American trade can be guaranteed only by the formulation of a definite policy upon the part of business men as well as the government and by co-operation among all elements. Increased South American trade founded on anything less substantial will remain vulnerable to the changing fortunes of European finance and business.

THE MARKETS OF SOUTH AMERICA AND THE WAR.

European Loans Have Been Cut Off, But Our Manufacturers Have a Great Opportunity—We in Turn Must Buy in South Ameria.

(By Charles M. Pepper in the Iron Age.)

The broad fact about the markets of South America is that the United States has the opportunity to supply commodities which heretofore have been supplied by the European belligerents. There will be a deficiency, especially in iron and steel products. Germany and Belgium, for the time being, are entirely shut off from supplying South America. Even England, though it may keep the ocean lanes open for its commercial fleet, will find its South American trade dislocated.

War Cuts Off Sources of Capital.

While this is the general situation, there is a limitation on the extent to which the United States may profit at once by the deficiency in supplies from Europe. This is the diminished ability of most of the South American countries to buy. The United States, by well-directed effort, may legitimately increase its permanent trade with South America as the result of the war. But too much should not be expected at the outset, because South America during the war period will buy much less abroad than during normal world conditions.

The probability is that the demand for material for harbor and other public improvements, for railroads and for construction enterprises of a public nature will be lessened. The war has paralyzed the ability of the South American countries to borrow money in Europe, and European loans have been the basis of their public improvements and their construction of railroads. Some of these countries were just emerging from commercial crises, due largely to economic causes, and were preparing to refund old loans and secure additional ones.

Brazil was negotiating for a loan of $100,000,000 in London, with some prospect of success. This money cannot now be obtained. Brazil, in fact, has issued an additional volume of paper currency to meet the stress.

Brazilian railroad enterprise, as represented by the syndicate which has been carrying on a comprehensive plan of ex- [illegible] London, Paris and Brussels. The Balkan wars interfered with the readiness of this group to advance further funds, but the prospect was said to be improving when the present war broke out. In these circumstances about all that can be expected will be to keep going the investments already made.

With the Brazilian government restricted in its opportunities for borrowing in order to carry on public improvements, and with private enterprise on a large scale compelled to restrict its activities in railroad building, it will be seen that Brazil is not likely to be a large buyer of certain commodities during the present year. This does not mean any lessening in the value and volume of its permanent market.

Argentina Recovering From Land Speculation.

Argentina had been getting on its feet after the monetary crisis which followed the riotous land speculation. Argentine public credit always has been high, and there were some intimations that as conditions improved the effort to float a new government loan, which was abandoned a year ago, might be renewed. The province of Buenos Ayres, which was in the market for a railroad loan, was also understood to be on the point of renewing negotiations.

None of these loans can now be floated and some big private enterprises which were dependent on foreign capital will have to be postponed. Argentine, however, is in a position to profit by the war, since the demand for its grain and beef will be increased and higher prices undoubtedly will be obtained. With this source of income assured, Argentina's purchases abroad may not be appreciably lessened on account of the war.

Finances of Chile and Peru.

Chile's financial condition has been frequently described as sound, but not sane.

*Mr. Pepper was for eight years prior to June, 1913, foreign trade expert of the State Department at Washington.

That is, the country has abundant resources to meet its financial obligations, but is apt to be reckless in incurring these obligations. Chile will maintain her credit abroad, and will pay all her debts, but she is not likely to get fresh loans with which to carry on public improvements.

The European market for the nitrate fertilizers is upset for one season at least. This means that the nitrate companies will be compelled to restrict their output and the government will find its revenues from the export tax on nitrates seriously diminished, and all this signifies that for a year at least Chile will be buying less material for construction enterprises than during the last few years.

Peru was seeking a loan to refund existing loans and meet current obligations when the war broke out. It had no great public improvements under way, and no private construction enterprises of magnitude. Its demand for material therefore may not be materially lessened, but an increase cannot be looked for.

Peru has the gold standard, which helps it in economic and financial crises. The cable reports have stated that the government has authorized the banks to issue checks based on gold to meet the stringency caused by the inability to procure the loan that was sought. Credits may not suffer, but Peru, for the next year, is likely to remain stationary as a buyer of manufactured articles.

The financial and economic situation in these countries is set forth in order that a conservative view may be had of the pros-

Imports of Iron and Steel Products, etc., Into Brazil by Countries of Origin, 1912.

Articles.	Total.	United States.	Great Britain.	Germany.	France.	Belgium.
Ammunition	$2,178,121	$457,294	.....	$1,369,956	$197,561	.....
Fire arms	2,280,796	572,302	$21,756	1,111,675	.....	$488,328
Bicycles	258,786	37,116	103,249	41,287	31,837	.....
Railroad cars	7,382,069	1,915,701	991,730	331,761	.....	3,912,337
Axles and wheels	1,328,604	271,653	268,616	431,786	.....	331,014
Motor cars	5,368,650	924,045	317,873	1,526,018	1,470,795	186,216
Motor car accessories	1,265,430	110,530	112,434	320,209	483,508	.....
Electrical machinery	4,811,052	2,060,944	569,563	1,375,764	537,636	.....
Electrical cable	579,885	250,047	241,369	49,997	.....	.....
Electrical insulators	204,388	55,044	.....	125,582	.....	
Cutlery	1,193,060	178,465	337,214	576,504	86,941	
Enameled ware	485,525	13,020	59,051	379,110	.....	.....
Galv. corrugated sheets	2,060,072	328,994	1,540,600	91,131	.....	.....
Bars, rods, plates, sheets	1,797,435	114,879	529,843	569,338	.....	397,021
Locomotives	3,749,149	1,871,639	459,850	1,290,737	.....	122,518
Motors and stationary eng.	1,450,513	425,918	333,753	507,533	70,511	.....
Agricultural machinery	702,013	409,458	84,233	179,056	.....	.....
Industrial machinery	5,758,613	230,799	2,776,668	1,784,057	354,519	.....
Other machinery	10,071,038	3,556,371	2,379,798	2,239,642	888,227	345,870
Nails, screws, etc.	547,469	117,401	143,478	116,920	80,627	.....
Rails, joints, etc.	9,384,650	1,868,840	751,474	1,344,151	2,071,438	3,318,764
Steel bars and rods	944,537	94,276	518,335	81,098	.....	.....
Structural material	3,099,101	196,928	648,710	1,223,603	384,630	564,202
Tubes, pipes, fittings	3,973,039	419,678	1,988,125	885,359	354,521	.....
Tools	3,311,443	694,927	1,537,651	661,834	299,377	.....
Tel. poles, bridge and fence material	1,478,680	328,901	391,635	360,880	25,509	469,437
Stills, boilers, etc.	716,563	77,856	466,263	78,623	.....	.....
Sewing machines	2,548,510	1,563,131	105,297	963,594	.....	.....
Hydraulic pumps and parts	365,636	92,776	118,906	86,698	.....	.....
Tin plate and sheets	1,421,649	271,410	1,112,935	.....	.....	.....
Copper wire	1,293,638	854,550	65,115	285,042	.....	.....
Other wire	2,880,837	823,876	227,990	1,403,714	.....	344,331

pect of the South American market for the United States. American manufacturers and exporters, not familiar with these conditions, might assume that South America would buy next year and this year just as much as it bought last year. If the totals show a falling off in certain lines they might draw misleading conclusions as to the real value of the market and abandon it. This would be a graver mistake.

Needs in Mining and Agricultural Machinery.

Having stated some of the drawbacks, it is proper to describe some of the favorable prospects. The purchase of mining machinery is not likely to be altered because mining development goes forward under the most unfavorable conditions. Building and household hardware are not apt to be interfered with, since the demand for these is not affected by international imbroglios. The physical reconstruction of the great city of Buenos Ayres will go right on, and the requirements for structural steel, which are so large a factor in its reconstruction, will continue to be large.

Agricultural machinery will continue to be wanted in Argentina and Brazil in as large quantities, at least, as heretofore. Textile machinery, which has been in demand in Brazil and in a lesser degree in Peru and Argentina, will also be required. The same is true of flour mill machinery. The market which recently has been developed in Argentina for woodworking machinery will not be lessened. Tools are always in demand.

Iron and Steel Products—Customs Valuations.

The nature of the market of the leading South American countries in detail, as relates to iron and steel products, is exhibited in the customs figures of imports by articles and countries of origin. Unfortunately, however, the statistics are not based on the same system as in the United States. The classifications of the different governments are in no way uniform, each country

Percentage of Imports of Iron and Steel Products Into Argentina by Countries of Origin, 1912.

Product and Total Imports.	United States.	Great Britain.	Germany.	France.	Belgium.
	%	%	%	%	%
Machinery (various kinds), $6,985,917	16.2	30.0	37.1	16.4	4.2
Pig and sheet iron, $6,516,677	6.5	10.4	39.6	....	42.0
Galvanized iron, $6,583,572	22.7	66.0	6.2	....	4.6
Automobiles, $5,346,149	10.5	....	15.9	43.6	8.4
Steel rails, $5,272,960	14.5	43.7	26.4	.	14.5
Railroad material, $5,195,266	2.6	82.8	4.7	.	7.5
Railroad freight cars, $3,950,791	14.6	69.5	.	.	13.5
Railroad passenger cars, $1,234,447	9.1	90.9			....
Tramway material, $1,514,311	5.0	31.6	34.5	. .	27.4
Iron columns and beams, $3,395,198	3.0	. . .	56.2	15.1	22.5
Wrought iron, $2,852,878	11.6	42.0	13.7	....	27.8
Parts of machinery, $2,764,317	40.5	23.4	23.2	2.2	1.5
Parts of carriages and auto's, $1,559,178	4.3	23.3	27.0	25.8	....
Reapers, $2,811,249	71.7	1.7	....	. .	....
Threshing machines, $1,572,054	80.0	11.8	8.0	.	....
Locomotives, $2,268,045	....	84.4	13.4	. .	2.2
Galvanized wire, $2,088,847	31.7	12.3	51.0	.	4.5
Iron manufactures, $1,428,677	15.6	22.1	32.3	10.3	8.8
Galvanized iron pipe, $1,341,502	17.7	74.7	6.4	. . .	....
Iron pipe not galvanized, $1,214,474	4.4	64.5	20.3	2.9	5.4
Wheels and axles, $1,302,619	....	92.0	....	. . .	....
Steel sleepers, $1,188,964	11.0	42.3	34.7	....	10.4
Motors of various kinds, $1,183,924	55.3	27.6	7.5	....	....
Bolts and nuts, $1,100,499	16.0	37.8	14.7	17.3	13.1
Tin plate, $1,074,469	33.3	64.9	.	.	. .
Machine tools [illegible], $1,063,855	6.7	77.8	11.0	..	4.0

has its own practice in this regard, and none of them follows classifications similar to those which prevail in the United States.

Exports of the different commodities from the United States to South American countries can be obtained from the statistics given in the Government publication, "Commerce and Navigation." A cautionary signal, however, is necessary because of the confusion which usually arises from trying to harmonize them with the import statistics of the countries to which the commodities are consigned. Aside from insurance and freights there are other factors which make for uncertainty.

Most of the South American countries have the system of "aforos," or fixed valuations of different commodities in the customs tariff classifications. Under this practice the value as shown in the manifest given by the exporter to the authorities in the United States may not be the same as the value under the customs classification of the importing country. A typewriter shipped to Argentina may show on the manifest at $50, while the Argentine customs may require it to be valued at $65, or vice versa. The same principle applies to numerous other commodities from threshing machines to cash registers.

What chiefly concerns the American manufacturer is the commodities which are now imported from European countries, and which may, under the present disturbed conditions, be shifted to the United States if proper effort is made to obtain the trade.

Though the classifications are not similar, it happens that some light may be obtained on this subject from the import statistics of the different South American governments. The nature of the Brazilian market can be gathered from the accompanying table for 1912, which is the latest year for which full statistics are available.

Argentine imports of iron and steel and kindred products by countries of origin may be exhibited in a different manner. The Argentine Department of Commerce and Industry, in one of its statistical summaries of Argentine international trade, made use of the system of percentages in showing the principal articles of importation exceeding $1,000,000 and principal countries of origin. As in the case of Brazil, the year 1912 was taken as the one for which the fullest statistics were available. That may be considered an average year. The statistical exhibit is as shown on previous page.

Uruguay, which belongs to the east coast group of countries, is not a heavy purchaser of iron and steel products. Given in metric tons, the quantity from all countries as exhibited in 1912 and 1913 ranges from 62,000 tons to 63,000 tons. Machinery varies from 12,000 to 15,000 tons. The United Kingdom, Germany and Belgium all share in the Uruguay market for iron and steel products with the United States.

Chilean Trade.

Chile, on the west coast, as has frequently been explained, in the past has been a very good purchaser of iron and steel products on account of its railroad building and its harbor and other public improvements. It is also a good purchaser of mining machinery.

Detailed statistics by classes and countries of origin of Chilean trade are not yet available. Something may be learned, however, from the broad general grouping of which the import statistics are made up. A large portion of iron and steel products come under the head of "mineral products", while "machinery" answers for the balance. Under this general grouping some conclusion may be drawn from the following tabular summary of imports of 1913:

	Mineral products.	Machinery.
Total	$22,275,078	$14,961,485
United States ...	4,428,199	3,333,894
United Kingdom	6,147,821	4,542,633
Germany	8,119,413	5,491,779

Belgium has a large trade with Chile in mineral products, the total for the year given having amounted to $2,497,000, made up principally of steel rails.

United States Must Buy More From South America.

There is a forgotten side to this matter of South American trade. American manufacturers and exporters who are searching for wider markets overlook that some of the countries may also be hunting for expanded markets for their products in the United States. In the present situation it is quite essential that the market for South American products in the United States be enlarged since much of the European market is shut off.

The raw material which may be wanted for the iron and steel and allied industries need in no way be interfered with by the

war. The only question is to what extent additional raw products may be absorbed by the industries of the United States.

Manganese exists in Brazil in superabundance, and it can hardly be assumed that the European war interferes with the ability to supply it. In an article on Brazil, published in "The Iron Age" on April 2, I explained the richness of the Brazilian manganese deposits, the facility with which they can be mined and the adequate transportation facilities which now exist. If the iron and steel industry of the United States is embarrassed for lack of Brazilian manganese, it is simply a case of holdup by the Brazilians.

The scare of the automobile industry over a prospective shortage of rubber, because of the war, may or may not be justified, although the supply from the Belgian Congo is undoubtedly in danger, and there may be interference with shipments from the Straits Settlement. But the Amazon has an abundant reserve supply. The hundreds of boats which a few months ago were tied up at Para are doubtless now busy. The jump in the price of Amazon rubber ought to help Brazil through its economic crisis, since the drop in price was one of the prime causes of the trouble.

Chilean nitrates have been used by the manufacturers of explosives in the United States, and it may be that since the war is spreading and explosives will be in greater demand, larger quantities of the nitrates can be absorbed, regardless of their utility as fertilizers.

Smelt Bolivian Tin Concentrates Here.

Bolivian tin is a raw material that, by every reason of sound industrial policy, ought to be smelted in the United States. The tin concentrates which heretofore have been brought down to Antofagasta and shipped through the Straits of Magellan, or around the Horn, can now come up through the Canal and reduce the war risk. With Hamburg shut out entirely, and with some danger attending shipments of tin concentrates to Liverpool, the beginning of the tin smelting industry on the Atlantic coast should not be far distant.

Chilean copper heretofore has gone largely to England and Germany. The low grade ores from the Braden mine, near Santiago, went to England. Most likely means will be found for absorbing larger quantities of Chilean copper in the United States.

Since the Bethlehem Steel Company's Tofo iron ore mines in Chile were acquired in order to supply the Bethlehem works, there will be none of this traffic to divert from other countries.

Peruvian copper has been so largely absorbed in the United States that there will not be large additional quantities to be taken by this country, yet there will be some increase.

These facts are cited briefly because it is always well to remember that in supplying products to South America, which heretofore have been supplied by the European belligerents, it is likewise necessary for the United States to absorb some of the South American products which they have absorbed.

A final hint may be given on the general subject. Ample data have been gathered by the Department of State and by the Department of Commerce regarding the details of South American trade. The reports of the Consuls to the State Department give much useful information regarding trade conditions. The reports of the Department of Commerce give a vast amount of technical data. What the American manufacturer and exporter should do is to digest this official information carefully and not seek to gulp it down at one swallow.

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WAR AND CONTRACTS

A British Point of View on Contracts and Payment of Debts.

An article on "The Effect of War on Contracts and Payment of Debts," by Mr. Alfred Hutchison, appeared in the current number of the "Commercial Review" (London). In the course of his article Mr. Hutchison remarks that the principles of law in some instances (relating particularly to alien enemies) are uncertain. There has never been a similar situation to the one now existing in civilized times, and various complications concerning the conflict of English and foreign laws have arisen which, in all probability, will be the subject of future litigation.

In regard to contracts made between British subjects and other persons who are not alien enemies, made with persons who are alien enemies, entered into before the declaration of war. Mr. Hutchison says: The general principle of the laws of England and the United States is that there must be an absolute interruption and interdiction of all commercial intercourse and dealings with alien enemies. Subject, therefore, to explanations and qualifications, that principle of law must regulate all contracts.

To prevent a possible misunderstanding, however, it is wise, before dealing in detail with the different kinds of contracts, to mention the much debated Article 23 (h) of The Hague regulations, which is as follows:

"It is prohibited to declare extinguished, suspended or unenforceable in a court of law the rights and actions of the nationals of the adverse party."

This article has been held by all international lawyers, except those of England and the United States, to admit alien enemies to the position of a persona standi in judicio. England and the United States, however, declare that the intention of the provision was that it should only apply to the parties in authority on a military occupation of an enemy's State.

However, it is quite clear that, whether it was intended as a direction for all countries to adopt the provisions as binding on the State or not, the fact remains that it cannot be part of the English law, because there has been no act of Parliament to enforce it. It may therefore be dismissed from the present considerations.

Contracts entered into with alien enemies before war is declared may be absolutely void or merely suspended, according to the nature of each particular contract.

For the purposes of considering this general principle, a distinction should be drawn between executed contracts, which, for the purposes of these remarks, may be considered as contracts which have been wholly performed by one party to the contract, leaving an obligation by the second party, and executory contracts, which may be considered as contracts in respect of which something remains to be done by both parties.

Executed contracts remain binding after the declaration of war unless the obligation remaining to be performer by the one party cannot by reason of its character be suspended until after the war, but no action can be brought to enforce such obligations until peace has been signed. This general principle applies particularly to contracts which only require for their complete performance the payment of money.

Where the upperformed obligations created by executed contracts are not merely obligations to pay money, and the proper performance of such obligations means intercourse of dealings with an alien enemy during the war, the contracts are absolutel void. It is possible that after the war money paid in respect of such contracts, under which no consideration has been received by the party paying the money, may be recovered on the ground of failure of consideration; but this statement of law is given with all reserve.

It will be noted, therefore, that by the law of England, the legal right and remedy in respect of debts due, to or by an alien enemy are suspended during hostilities. On the signing of peace the right and remedy are revived. (Wolf v. Oxholm, 6 M and S 92.)

In addition to the fact that such debts cannot be recovered, it should be noted that it is illegal to pay any such debt if it involves the transmission of money to the enemy State. If, however, an alien enemy has a recognized agent in England who

was duly appointed before the declaration of war, payment to such an agent would not be illegal, but, even then, the agent must not, in any circumstances, transmit the same money to the enemy State or in any manner have any commercial intercourse or dealings with his principal on the matter.

There are certain exceptions to the general rule that rights and remedies to sue for debts are suspended, namely:

1. An enemy subject who does not bear enemy character because he is resident in a neutral country or because he resides in Great Britain under a license either expressed or implied (from the fact that there is no expulsion order promulgated) can sue or be sued in the British or American courts.

2. An action may possibly be brought in the English courts if all parties were to waive their objections, but this question is by no means settled, and, in fact, Lord Davey suggested that such a course would be against public policy. (Jansen v. Driefontein Consolidated Mines, 1902, A.C. 505.)

3. It has been decided that a dividend payable under a bankruptcy in respect of a debt properly due and payable before a declaration of war to an alien enemy ought to be retained in hand for payment to him after peace has been signed (ex parte Bouss-maker, 13 Ves. 71).

It is possible that the court might recognize an action against an alien enemy who has property in this country on which a judgment could be executed, provided that the action was in respect of a contract which was executed in the sense above mentioned prior to the declaration of war; but this point does not appear to have been established in any recorded case in England. The principle was accepted in America (Dorsey v. Kyle, 1869 3 Maryland). It should be pointed out, however, that there may be technical difficulties in pursuing such a remedy by reason of the difficulty in serving process, etc.

Executory contracts may on a declaration of war become absolutely void or be merely suspended, according to the character of each individual contract.

If the time of performance is the essence of the contract, or is very material, and where the due performance of obligations thereunder would mean intercourse or dealing with an alien enemy during war, the contract may be considered as absolutely void. If the time of performance is immaterial and there need be no risk of intercourse or dealing with an alien enemy, then such a contract may be suspended until peace has been signed.

Mr. Hutchison also discusses the moratorium and other matters of importance to traders in present circumstances.

RAILROAD EARNINGS.

The following table is compiled from the monthly reports of the Interstate Commerce Commission, and cover all railroads in the United States having gross income of $1,000,000 or over per year. The statements are per mile of road operated, and show gross revenue from operations, operating expenses and net operating revenue.

	1911-12			1912-13			1913-14		
	Revenue.	Expenses	Net.	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.
July ...	$1,025	$698	$327	$1.113	$750	$363	$1,161	$814	$348
Aug. ...	1,119	726	393	1,211	776	435	1,219	831	388
Sept. ...	1,137	725	411	1,206	775	430	1,237	832	405
Oct. ...	1,175	749	425	1,311	827	484	1,294	870	424
Nov. ...	1,093	734	360	1,213	806	407	1,163	824	339
Dec. ...	1,046	720	326	1,159	799	360	1,100	800	299
Jan. ..	932	728	203	1,087	803	284	1,005	776	229
Feb. ...	964	710	254	1,011	752	259	900	729	171
Mar. ...	1,051	746	305	1,081	799	282	1,076	782	294
April ..	974	717	257	1,065	802	262	1,027	763	258
May . .	1,030	735	295	1,150	830	320	1,030	779	250
June .	1,075	737	339	1,140	803	337			
Totals.	$12.621	$8,725	$3,895	$13,754	$9,530	$4,225			

* Bureau of Railway Economics; Interstate Commerce Commission not yet available.

TOPICAL TALKS ON IRON.

XVIII. The World's Consumption.

The world's production of pig iron is about 75,000,000 tons. The world's "steel" production is frequently stated in figures indicating almost as large a tonnage as that of pig iron, but such figures are quite misleading, since they refer to ingots and castings and not to finished rolled steel in form suited for fabrication. The rolling produces a great deal of scrap, which goes through the steel making process again and this enters twice into the figures purporting to show the "steel production". The production of finished rolled iron and steel is probably at best between 55,000,000 and 60,000,000 tons, while the tonnage of iron castings, made partly from pig iron and partly from scrap, is probably in the neighborhood of 25,000,000 tons at least. The total production of rolled steel, rolled iron, steel castings and iron castings, is probably in the neighborhood of 80,000,000 to 85,000,000 tons, in a year of fairly full production, like 1913. It would be better, indeed, to say that such was the production in 1913, for production was heavier in that year than in any preceding year, and was about double that of 15 years earlier.

The countries of largest production are also the countries of largest consumption, for production stimulates consumption by offering the material at relatively low prices, and consumption stimulates demand. The United States, Germany, England, France and Belgium produce more than 90 per cent of all the iron and steel, and consume within their borders (including some interchange between them) about 85 per cent of their production, although the distribution of population is more nearly the other way, the rest of the world having not far from 85 per cent of the population.

The consumption of iron and steel in the non-producing markets is of course quite different from that of the United States. The non-producing markets, frequently called "neutral markets" take practically nothing but finished goods ready for actual consumption or use. They do not make machinery, hardware or cutlery, but buy these products in finished form. They have a fairly large consumption of wire for fencing, nails for building and sheets for more or less permanent structures. The greatest consumption of iron and steel in the neutral countries, however, is for permanent improvements, the building of railways and bridges and the laying of pipe lines. The important feature about this consumption is that it depends chiefly upon industrial development and the possibility of financing. No "neutral market" has a definite and regular demand for any important tonnage of steel. On the other hand they all have almost unlimited possibilities. Thus there is no standard, no conventional per capita consumption, to which such markets may be expected to grow up to. While the per capita consumption in the United States is something like a quarter of a ton per annum, a new country, with great mineral and agricultural possibilities, might easily have half a ton or a ton per capita consumption per annum, for a limited period, if the work could be financed. The actual experience thus far has been, of course, of actual per capita consumption very much less than in the United States. The possibilities of the future are another matter.

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THE SITUATION.

The war made it necessary that the iron and steel market should pass through three stages, destruction, stagnation and reconstruction. Destruction, owing to the partial breaking down of credits and the stoppage of exports, stagnation, when the full effect of the breakdown came to be felt, and reconstruction, when the needs of foreign countries, shut off from their former sources of supply, should force the establishment of financial operations which would enable business to be done. August marked the period of destruction, and this month falls in the period of stagnation. When the period of reconstruction will really begin remains in doubt.

As to buying of iron and steel products, the full measure of the stagnation has already been experienced. As to production such is not the case. The inflow of new business, in the early days of September, is much below the rate of shipping, thus far only slightly reduced from the rate of July and the fore part of August, and thus the trend in production is towards still lower levels.

In brief, the situation, as already indicated, is one of stagnation. What is in men's minds is that eventually a period of great prosperity will occur, but that the time of its inception is very indefinite and that in any event it behooves everyone to exercise the utmost caution and be ultra conservative. One of the features distinguishing the present from other periods of stagnation is that producers are disposed to adhere strictly to recognized market prices, holding this as one of the ways in which conservatism should be exercised, it being desirable that order books should be kept ready for a large inflow of business at any time.

Trends in the Trade.

The trends in the trade to which the market reviewer ordinarily must pay attention in an effort to depict prospects are poorly marked at the moment and entirely lack the significance they usually possess. As the war in all its magnitude was thrust upon the world in a few days, barely a week, so the disruption of financial and commercial movements was sudden and complete, and [illegible] downward trends thus caused, in activity and in confidence, were quickly consummated. Few trends of this sort now remain, the only conspicuous one being the trend towards decreased output as business on books is worked off and the effect of light buying for several weeks comes to be felt more and more. In prices there is no trend; the market in iron and steel has simply halted upon a recognized basis, with no disposition on the part of sellers to modify the existing level in either direction. In buying there is no downward trend, nor is there any upward trend. Such an upward trend would indeed most clearly mark the arrival of the period of reconstruction and recovery and neither in this nor in any other respect do we find material for a theory that this period, though inevitably it must come, has yet arrived.

Export Trade.

Possible export trade in iron and steel must be divided sharply into two classes. Failure to make the fundamental distinction we shall outline has been the occasion in the past few weeks of much error in diagnosing the future and measuring the benefits which at such terrible cost to others may eventually come to the iron and steel trade of the United States. The fundamental distinction to be made is between export business in semi-finished material to England, and exports of finished goods to actual consuming markets. Just prior to the war England had been drawing from Germany and Belgium unfinished steel, in blooms, slabs, billets, sheet and tin bars and wire rods, about half a million tons annually. England, Germany, France and Belgium were exporting to non-producing, or the so-called "neutral markets" some 7,000,000 or 8,000,000 tons annually of finished iron and steel. Immediately upon the tying up of the German and Belgian works the English consumers of the unfinished steel in question became eager to assure themselves that, if necessary, the United States could be drawn upon for the material no longer obtainable from the continent, and enquiries were at once dispatched.

Promptly there arose in the United States a theory that with supplies of finished products more or less completely shut off from England and the Continent, the neutral markets would require the United States to make up the deficiency, and loose

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talk of a large export trade from the United States in the immediate future quickly arose. Then came the fatal error on the part of many observers of assuming that the enquiry for unfinished steel from England represented the first fruits of the general movement expected. Differentiating these two classes of export prospects, however, it becomes clear that England's possible desire for American unfinished steel is one thing, arising immediately and being in substance along the line of England sending finished steel to neutral markets, and demand for finished steel from neutral markets an entirely different thing, dependent upon the ability of neutral markets to finance purchases. The one demand by no means suggests the other.

England is conducting two contests, each with all the vigor of which she is capable, the one in a war with Germany, the other in an effort to capture all the trade Germany is forced to relinquish. To furnish England with unfinished steel is in large measure to confess our inability to meet her competition in neutral markets, and to regard such business as a tangible and important result of the war is to renounce belief in our ability to build up a large direct export trade in finished materials to neutral markets.

From this viewpoint we refuse to adopt at par the views being so frequently expressed in these days that we have in our hands assurance of a large iron and steel export trade in the very near future. We have prospects, or hopes, but the export enquiry we have in hand, being largely for unfinished steel for England, we regard as distinctly no measure of these prospects

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered).

	Bessemer, Valley	Basic, Valley	No.2 fdy, Phila.	Basic Phila.	No. 2X Phila.	fdy, Buffalo.	No. 2 fdy Cleveland.	No. 2 fdy Chicago.	No. 2 fdy Birmingham.	Ferro-manganese.*	Furnace coke†
1913—											
Jan. ..	17.25	16.50	17.50	18.00	18.49	17.50	17.75	18.48	13.72	65.00	3.85
Feb. .	17.25	16.43	17.12	17.75	18.23	17.22	17.44	17.87	13.46	65.00	2.60
Mar. ..	17.20	16.14	16.60	17.50	17.81	16.79	16.75	17.75	13.04	64.00	2.47
April .	17.00	15.87	15.66	17.00	17.49	15.96	15.41	17.60	12.60	61.00	2.20
May ..	17.00	15.25	14.73	16.50	16.77	15.58	15.56	16.67	11.74	61.00	2.15
June ..	16.34	14.50	14.18	16.50	16.26	14.43	14.95	16.24	10.89	61.00	2.20
July ..	15.86	14.40	13.88	15.90	15.66	14.01	14.68	15.38	10.50	59.00	2.50
Aug. ..	15.63	14.09	13.94	15.25	15.56	14.20	14.50	15.44	10.85	56.70	2.50
Sept...	15.75	14.00	14.00	15.25	15.97	14.25	14.55	15.50	11.20	54.50	2.37
Oct. ..	15.67	13.97	13.83	15.25	15.94	14.25	14.73	15.50	11.48	50.28	2.10
Nov...	15.23	13.28	13.57	15.13	15.61	13.96	14.35	15.43	10.80	50.00	1.88
Dec. ..	14.95	12.83	13.38	14.75	14.98	13.32	13.76	14.83	10.50	47.00	1.77
Year ..	16.26	14.77	14.87	16.23	16.56	15.12	15.37	16.39	11.73	57.87	2.38
1914—											
Jan. ..	14.06	12.51	13.00	14.25	14.69	12.76	13.30	14.35	10.63	43.42	1.88
Feb. ..	14.13	13.21	13.21	14.00	14.88	13.02	13.56	14.46	10.52	38.33	1.90
Mar. ..	14.20	13.05	13.25	14.10	15.00	13.38	13.75	14.75	10.75	38.40	1.92
April .	14.00	13.00	13.25	14.25	15.00	13.75	14.21	14.75	10.52	38.00	1.90
May ..	14.00	13.00	13.17	14.10	14.91	13.57	14.25	14.68	10.50	38.00	1.83
June ..	14.00	13.00	13.00	14.00	14.51	13.01	14.35	14.21	10.29	38.00	1.80
July ..	14.00	13.00	13.00	14.00	14.40	13.00	13.81	14.38	10.06	37.50	1.75
Aug. ..	14.00	13.00	13.00	14.00	14.28	13.18	13.75	14.14	10.00	111.00‡	1.74

* Contract price, f.o.b. Baltimore; †Prompt, f.o.b. Connellsville ovens

‡ Spot shipment; no contract market.

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The business is farther away than in some quarters is assumed.

There has been a strong inclination to take for granted the idea that the establishment of means of shipment to neutral markets represented the removal of the only desideratum to a large expansion in our trade. This is unquestionably another error. The neutral markets must be in position to buy, and means must be afforded for making payment. Purchases in neutral markets have, in the final analyses, been largely the result of English and continental financing, now practically withdrawn. We have never done any financing to speak of beyond our own borders, or at least beyond the borders of our own continent of North America. Thus there must be furnished means for financing, and means for completing payment. Gradually these means will be developed, but months rather than weeks will be required.

The export situation at the moment is that while in 1912 we exported an average of about 250,000 tons of iron and steel a month and in the first six months of this year about 140,000 tons a month, our exports at the moment are only a small fraction of 140,000 tons a month. There have been sales of a few thousand tons of rods to England, and perhaps some tonnages of billets and sheet bars. A little new export business has been taken, some of it business already placed with Germany, and export enquiry seems to be opening up in a moderate way, but all that is thus far tangible represents a smaller volume of export business than we have had in the past.

The Future.

On all hands it is frankly admitted that the future, both immediate and distant, is impossible to judge with any degree of confidence. Prognostications are largely speculative, but inasmuch as all men are

FINISHED STEEL PRICES.

(Averaged from daily quotations, f.o.b. Pittsburgh.)

	Shapes.	Plates.	Bars.	Pipe.	Wire.	Wire Nails.	Cut Nails.	Sheets Black.	Sheets Galv.	Tin plate.	Composite Finished steel.
1913—											
January	1.50	1.50	1.40	80	1.55	1.75	1.70	2.32	3.47	3.60	1.7737
February ..	1.45	1.45	1.40	80	1.55	1.75	1.70	2.35	3.50	3.60	1.7625
March	1.45	1.45	1.40	80	1.56	1.76	1.70	2.35	3.50	3.60	1.7646
April	1.45	1.45	1.40	79¾	1.60	1.80	1.70	2.35	3.45	3.60	1.7743
May	1.45	1.45	1.40	79½	1.60	1.80	1.70	2.35	3.40	3.60	1.7786
June	1.45	1.45	1.40	79	1.55	1.75	1.70	2.29	3.38	3.60	1.7719
July	1.45	1.45	1.40	79	1.50	1.70	1.70	2.25	3.31	3.60	1.7600
August	1.45	1.44	1.40	79¾	1.47	1.67	1.60	2.20	3.25	3.60	1.7400
September..	1.40	1.40	1.40	80	1.43	1.63	1.60	2.12	3.17	3.60	1.7093
October ...	1.39	1.36	1.39	80	1.40	1.60	1.60	2.04	3.08	3.50	1.6779
November	1.34	1.29	1.30	80	1.40	1.60	1.60	1.98	2.98	3.40	1.6203
December ..	1.24	1.21	1.22	80	1.35	1.55	1.60	1.90	2.90	3.40	1.5558
Year ..	1.42	1.41	1.38	79¾	1.50	1.70	1.66	2.21	3.28	3.56	1.7241
1914—											
January	1.20	1.20	1.20	80	1.33	1.53	1.60	1.86	2.86	3.40	1.5394
February ..	1.25	1.21	1.22	79½	1.40	1.60	1.60	1.95	2.95	3.40	1.5794
March	1.21	1.18	1.20	79½	1.40	1.60	1.60	1.95	2.95	3.40	1.5638
April	1.18	1.15	1.15	79¾	1.40	1.60	1.60	1.90	2.89	3.39	1.5337
May ..	1.15	1.14	1.14	80	1.38	1.58	1.60	1.85	2.79	3.30	1.5078
June	1.12	1.10	1.12	80	1.30	1.50	1.58	1.81	2.75	3.30	1.4750
July	1.12	1.11	1.12	80	1.32	1.52	1.55	1.80	2.75	3.30	1.4805
August	1.18	1.18	1.18	80	1.37	1.57	1.55	1.88	2.87	3.50	1.5421

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equally uncertain there is as much tangible value in predictions as at any other time. That there are no definite signs that the recent stagnation has been broken should be generally admitted, and since in some respects the industry has not yet felt, in reduced production, the full effect of the extremely light buying of recent weeks, it seems moderately certain that a condition at least bordering on stagnation will obtain for some time to come. One should divest himself of the idea that everything hinges upon the future of exports, but should remember that there was, before the war, good ground for expecting a very considerable revival in domestic trade, and should also remember that the war has not affected our very excellent crops. These are favorable factors. A moderate buying power may be restored to neutral markets in a short time, within a period of a very few months, and while England will make a strong effort to expand her trade, her resources in the direction of expansion in production are vastly less than our own.

Pig Iron.

Buying of pig iron was extremely light

U. S. STEEL CORPORATION'S OPERATIONS.

EARNINGS AND UNFILLED ORDERS.

Earnings by Quarters.

Net earnings by quarters since 1908:

Quarter.	1914.	1913.	1912.
1st	$17,994,381	$34,426,801	$17,826,973
2nd	20,457,596	41,210,813	25,102,265
3rd	.....	38,450,400	30,063,512
4th	.....	23,036,349	35,185,557
Year	.....	137,133,363	108,178,307
	1911.	1910.	1909.
1st	$23,519,203	$37,616,876	$22,921,268
2nd	28,108,520	40,170,960	29,340,491
3rd	29,522,725	37,365,187	38,246,907
4th	23,155,018	25,901,730	40,982,746
Year	104,305,466	141,054,753	131,491,412

Unfilled Orders.

(At end of the Quarter):

	First.	Second.	Third	Fourth.
1903..	5,410,719	4,666,578	3,278,742	3,215,123
1904..	4,136,961	3,192,277	3,027,436	4,696,203
1905..	5,579,560	4,829,655	5,865,377	7,605,086
1906..	7,018,712	6,809,584	7,936,884	8,489,718
1907..	8,043,858	7,603,878	6,425,008	4,642,553
1908..	3,765,343	3,313,876	3,421,977	3,603,527
1909..	3,542,590	4,057,939	4,796,833	5,927,031
1910..	5,402,514	4,257,794	3,158,166	2,674,757
1911..	3,447,301	3,361,058	3,611,317	5,084,761
1912..	5,304,841	5,807,346	6,551,507	7,932,164
1913..	7,468,956	5,807,317	5,003,785	4,282,108
1914..	4,653,825	.....	.....	.....

BOOKINGS AND SHIPMENTS.

In this table, first two columns, percentages of bookings and shipments to total capacity, are our estimates, while last column is derived from official reports of "unfilled tonnage" while third percentage column is directly computed from this tonnage column.

1912—	Shipments. %	Bookings. %	Difference. %	Difference. Tons.
June	94	99	+ 5	+ 56,363
July	82	95	+13	+149,733
August	92	110	+18	+206,296
September .	98	135	+37	+388,132
October ..	98	187	+89	+1,042,874
November .	96	120	+24	+258,512
December ..	97	104	+ 7	+ 79,281
January 1913	98	89	— 9	—104,796
February ..	98	82	—16	—170,654
March	93	77	—16	—187,758
April	93	51	—42	—490,194
May	95	41	—54	—654,440
June	93	47	—46	—517,005
July	90	55	—35	—407,961
August ...	90	75	—15	—175,888
September .	82	74	—18	—219,683
October ...	87	74	—10	—190,018
November ..	70	59	—11	—117,420
December ..	50	40	—10	—114,239
January 1914	55	83	+28	+331,572
February ...	67	105	+38	+412,764
March	72	40	—32	—372,615
April	67	35	—32	—376,757
May	62	37	—25	—278,908
June	63	66	+ 3	+ 34,697
July	64	75	+11	+125,732
August ...	67	72	+ 5	+ 54,742

COMPARISON OF METAL PRICES.

	Range for 1912.		Range for 1913.		Range for 1914.		Closing
Pig Iron.	High.	Low.	High.	Low.	High.	Low.	Aug. 31,
Bessemer, valley	17.25	14.00	17.25	14.25	14.25	14.00	14.00
Basic, valley	16.50	12.25	16.50	12.50	13.25	12.50	13.00
No. 2 foundry, valley	18.00	13.00	17.50	13.00	13.25	13.00	13.00
No. 2X foundry, Philadelphia	18.50	14.75	18.50	14.50	15.00	14.25	14.45
No. 2 foundry, Cleveland	17.75	13.25	17.75	13.50	14.25	13.25	13.75
No. 2X foundry, Buffalo	17.25	13.50	18.00	13.00	13.75	12.50	13.25
No. 2 foundry, Chicago	18 00	14.50	18.00	14.00	14.75	14.00	14.00
No. 2 Southern, Birmingham	14.00	9.75	14.00	10.50	10.75	10.00	10.00
Scrap Iron and Steel.							
Melting steel, Pittsburgh	16.25	12.50	15.00	10.75	12.00	11.00	11.50
Heavy melting steel, Chicago	14.00	10.75	13.25	9.00	11.00	9.00	9.75
No. 1 R.R. wrought, Pittsburgh	16.25	13.00	15.75	11.50	12.75	11.50	11.75
No. 1 cast, Pittsburgh	15.25	12.35	15.00	11.50	12.25	11.25	11.25
Heavy steel scrap, Philadelphia	17.00	11.75	14.75	9.75	11.25	9.75	10.75
Iron and Steel Products.							
Bessemer rails, mill	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Iron bars, Pittsburgh	1.65	1.25	1.65	1.35	1.35	1.25	1.25
Iron bars, Philadelphia	1.67½	1.22	1.67½	1.22½	1.27½	1.17½	1.17½
Steel bars, Pittsburgh	1.40	1.10	1.40	1.20	1.20	1.10	1.20
Tank plates, Pittsburgh	1.50	1.10	1.50	1.20	1.20	1.10	1.20
Structural shapes, Pittsburgh.	1.50	1.10	1.50	1.20	1.25	1.10	1.20
Grooved steel skelp, Pittsburgh	1.45	1.15	1.45	1.15	1.20	1.15	1.15
Black sheets, Pittsburgh	2.25	1.80	2.35	1.80	2.00	1.80	2.00
Galvanized sheets, Pittsburgh	3.40	2.80	3.50	2.80	3.00	2.75	3.00
Tin plate, Pittsburgh	3.60	3.30	3.60	3.40	3.60	3.30	3.60
Cut nails, Pittsburgh	1.70	1.50	1.70	1.60	1.60	1.55	1.55
Wire nails, Pittsburgh	1.75	1.55	1.80	1.50	1.60	1.50	1.60
Steel pipe, Pittsburgh	79%	81%	79%	80%	79½%	80%	80%
Connellsville Coke at ovens.							
Prompt furnace	4.25	1.80	4.25	1.75	2.00	1.70	1.70
Prompt foundry	4.50	1.90	4.50	2.40	2.50	2.25	2.25
Metals—New York.							
Straits tin	51.05	42.05	50.70	36.75	65.00	30.00	38.50
Lake copper	17.80	14.15	17.00	14.50	15.50	12.50	12.62½
Electrolytic copper	17.75	13.95	16.87½	14.12½	14.87½	12.20	12.35
Casting copper	17.65	13.75	16.62½	13.87½	14.65	12.10	12.25
Sheet copper	23.90	19.00	22.00	19.75	20.25	18.00	18.00
Lead (Trust price)	5.10	4.00	4.75	4.00	4.15	3.80	3.90
Spelter	7.65	6.45	5.65	5.10	6.20	4.90	6.05
Cooksons antimony	10.50	7.12	9.00	7.25	22.00	7.00	15.50
Aluminum 98-99%	28.00	18.50	27.12½	18.50	21.50	17.37½	20.00
Silver	64⅛	54¼	62⅞	56⅛	59⅛	52¼	53⅞
St. Louis.							
Lead	5.02½	3.90	4.72½	3.85	4.10	3.65	3.73¾
Spelter	7.50	6.25	5.85	4.95	6.00	4.70	5.90
Sheet zinc (f.o.b. smelter)	9.00	8.00	9.00	7.00	8.50	7.00	8.50
London.	£	£	£	£	£	£	£
Standard tin, prompts	233	183¾	232	166½	188	132	*132
Standard copper, prompts	80½	60⅛	77	61¼	66¾	56	*56
Lead	23¾	15⅞	21⅝	15⅛	20⅜	18	*18¾
Spelter	27⅝	25	26¼	20¼	21¾	21¼	*21¾
Silver	29⅛d	25⅞d	25⅞d	25⅛d	27⅛d	23¾d	24¼d

* Closing July 31.

COMPARISON OF SECURITY PRICES.

	Range for 1912.		Range for 1913.		Range for 1914.		Closing.
Railroads.	High.	Low.	High.	Low.	High.	Low.	July 30.
Atchison Top. & Santa Fe...	111¾	103¼	106⅝	90¼	100⅛	89½	89⅝
Atch. Top. & Santa Fe, pfd.	104¼	101⅜	102¼	96	101¼	97¼	97¾
Baltimore & Ohio	111⅞	101¼	106⅝	90⅝	98⅝	72	72
Canadian Pacific	283	226½	266¾	204	220½	156⅛	157½
Chesapeake & Ohio	85¼	68¼	80	57⅛	68	41½	41½
Chicago, Mil. & St. Paul	117⅝	99⅜	116¼	96¾	107⅛	85	85¼
Erie R. R.	39⅛	30	32½	20¼	32½	20⅛	20¼
Great Northern, pfd.	143⅞	126	132⅝	115½	134¾	113	114
Lehigh Valley	185¾	155⅞	168⅝	141½	156¾	118	122
Louisville & Nashville	170	138	142¼	126¼	141⅞	127	127
Missouri, Kansas & Texas ...	31⅝	25½	29⅛	18⅛	24	9	10¼
Missouri Pacific	47¾	35	43⅝	21¼	30	8	8
New York Central	121⅞	106⅛	109¾	90⅝	96⅝	77	80
N. Y., N. H. & Hartford ...	142¼	126	129⅝	65⅝	78	49⅝	51
Northern Pacific	131½	115⅜	122⅝	101¾	118½	97	98¾
Pennsylvania R. R.	186⅞	119⅞	123¾	106	115½	105⅛	105⅛
Reading	179¼	148⅛	171¾	151⅜	172¼	137	140
Rock Island	30½	22⅜	24⅞	11⅝	16⅝	⅞	⅞
Southern Pacific	115½	103½	110	83	99½	84⅞	84⅞
Union Pacific	176¾	150¾	162¾	137¾	164⅜	112	113½
Wabash	9½	3¾	6	2	4⅝	½	½
Industrials.							
Amalgamated Copper	92¾	60	80½	61	78⅛	49	49½
Am. Beet Sugar	77	46½	50½	19¾	29⅜	19	19
American Can	47⅜	11¼	46⅞	21	35⅞	19¼	19½
American Can pfd.	126¼	90⅝	129½	80½	96	80	80
Am. Car & Foundry	63⅝	49⅜	56⅜	36½	53½	44	44⅛
Am. Cotton Oil	60¼	45½	57⅝	33½	46½	32	32
Am. Locomotive	47½	31¾	41½	27	37¼	20¼	20¼
Am. Smelting & Refin'ng	91	66½	74¾	58½	71⅞	50¼	52½
Brooklyn Rapid Transit	94½	76¾	92¾	83¾	94¼	79	79½
Chino Copper	50⅜	25	47⅝	30⅜	44	32	32
Colo. Fuel & Iron Co.	43¾	23⅛	41½	24½	34½	20½	21½
Consolidated Gas	149½	135¾	142⅜	125⅛	139½	116	116½
General Electric	188½	155	187	129¾	150⅝	138¾	139
Interborough Metropolitan ...	22	16¼	19⅝	12⅜	16⅜	10¾	11
International Harvester	126⅞	105¼	111½	96	113½	82	82
International Steam Pump ...	34	12	18½	4½	9⅞	3	3
Lackawanna Steel	55½	28	49⅞	29⅞	40	26½	26½
National Lead	68¼	51⅛	56¼	43	52	40	41⅝
Ray Consolidated Copper	24⅛	16	22	15	22½	16¼	16¼
Republic Iron & Steel	35⅞	15¾	28⅜	17	27	18½	18½
Republic Iron & Steel, pfd...	93⅜	64½	92¼	72	91¼	78	78
Sloss-Sheffield	59¾	39¼	45½	23	35	19½	19½
Texas Co.	130⅝	81	132½	89	149⅞	112	113
U. S. Rubber	67⅞	45¼	69½	51	63	44½	44¾
U. S. Steel Corporation	80¾	58¼	69⅛	49⅞	67¼	50½	51⅞
U. S. Steel Corporation, pfd.	117	107¼	110¾	102½	112¾	106½	106½
Utah Copper	67½	52½	60⅝	39⅝	59⅜	45⅞	46
Va.-Carolina Chem.	57¼	40¾	43⅛	22	34⅞	21	21
Western Union Telegraph ...	86¼	72	75⅛	54⅛	66⅞	53⅜	53⅜

IRON AND STEEL.

throughout August, and the tendency was for consumers to take smaller shipments than formerly on their old contracts, resulting in the blowing out of some four or five merchant stacks throughout the country at the close of the month. Incidentally it may be mentioned that two Canadian merchant furnaces also blew out While the seaboard market was relieved of the threat of importations the domestic market was quiet enough to prevent this fact from expressing itself upon the price situation to any important extent. The Buffalo market advanced 25 cents early in the month and the Philadelphia market 20 cents late in the month, while after the middle of the month the Chicago market dropped 50 cents. These were the only changes in the descriptions of pig iron entering into our composite and the composite therefore declined one-half cent in the month. Below are indicated the changes in the composite since the beginning of last year:

August	13.50	— 0.5
September	13.495	

Unfinished Steel.

The producing mills seem to have had the billet and sheet bar market under complete control, announcing an advance of $1 a ton in the first week in August, and another and similar advance by the middle of the month, putting their quotations up to $21 for billets and $22 for sheet bars. The control, however, may be more apparent than real, for almost all the tonnage is tied up in contracts, upon which private adjustments are made from month to month. These adjustments are discounts from the open or quoted market and the amount of the discount does not become public property. Thus the openly quoted prices do not represent the prices at which the great bulk of the tonnage changes hands, and the buyers are trading in the dark instead of in the open. The practice is likely to grow irksome to them in time. Deliveries of sheet bars in August were probably settled for at an average price somewhat below $20 at maker's mill, some buyers faring better than others, according to their shrewdness, while the average quoted price for the month was between $21 and $22. Rods moved up to $26 after the middle of the month, but the open market price is of no consequence at this time, large consumers being covered by contracts extending to close of the year, chiefly at less than $25.

Finished Steel.

Attributing their action to the scarcity of ferromanganese and the possibility of American mills being soon deluged with orders from abroad the mills advanced bars, plates and shapes about August 10th by $1 a ton, to 1.20c for prompt delivery, or through September, and 1.25c on contracts for fourth quarter. A more practical reason probably was the desire to make contracts at 1.10c and 1.15c productive of tonnage. In this respect the move was moderately successful. The market has become so stagnant that the 1.20c price is not seriously tested, but a significant fact is that the mills have receded from the 1.25c quotation for fourth quarter.

By virtue of a much stronger mill position due to heavy buying the sheet market successively advanced during August until by the close of the month a level of 2.00c for black and 3.00c for galvanized was reached, making the total advance from the low level which extended to the end of July of $4 a ton in black and $5 a ton in galvanized. Wire products were advanced $1 a ton on August 21st, to a basis of $1.60 for nails.

Ferromanganese.

Upon the breaking out of the war prices on ferromanganese were withdrawn by the foreign makers, and the only market left was in relatively small prompt lots, largely re-sale. Prices advanced until $140 and $150 were paid in several instances, conditions then becoming easier, as prospects opened for a resumption of shipments by the English producers on their regular contracts. The United States Steel Corporation sold a few lots at about $85 and is expected to sell more, in proportion as its supplies of manganese ore enable it to make more alloy than is required for its own steel operations. The total tonnage traded in at over $100 was probably only a very few thousand tons. It is possible the real crisis in ferromanganese will come at the beginning of the year, when contract deliveries by the English makers will have been completed.

PRICE CHANGES.

Price changes in merchant bars, structural shapes, plates, wire nails, merchant pipe, sheets and tin plates are given below, with dates, from June, 1912. These are the commodities used in compiling our **composite finished steel.** In some cases the dates named are those upon which prominent producers announced price changes, but more frequently dates are merely those upon which our quotations were changed.

1912—			
July 25	Pipe	80%	to 79%
Aug. 1	Bars	1.25	to 1.30
" 1	Plates	1.30	to 1.35
" 1	Shapes	1.30	to 1.35
" 13	Sheets	2.00	to 2.05
" 20	Plates	1.35	to 1.40
" 20	Shapes	1.35	to 1.40
" 26	Wire nails	1.65	to 1.70
Sept. 4	Tin plate	3.50	to 3.60
" 4	Sheets	2.05	to 2.10
" 11	Sheets	2.10	to 2.15
" 26	Bars	1.30	to 1.35
Oct. 8	Plates	1.40	to 1.45
" 8	Shapes	1.40	to 1.50
" 9	Bars	1.35	to 1.40
" 10	Plates	1.45	to 1.50
" 10	Shapes	1.45	to 1.50
" 17	Sheets	2.15	to 2.25
Dec. 10	Wire nails	1.70	to 1.75
1913—			
Jan. 2	Pipe	79%	to 80%
" 14	Sheets	2.25	to 2.35
Feb. 1	Plates	1.50	to 1.45
" 1	Shapes	1.50	to 1.45
Mar. 24	Wire nails	1.75	to 1.80
April 14	Pipe	80%	to 79½%
May 27	Pipe	79½%	to 79%
June 2	Wire nails	1.80	to 1.75
" 11	Sheets	2.35	to 2.30
" 18	Sheets	2.30	to 2.25
July 1	Wire nails	1.75	to 1.70
Aug. 9	Pipe (¾-3-in.)	79%	to 80%
" 12	Wire nails	1.70	to 1.65
" 21	Sheets	2.25	to 2.15
" 27	Plates	1.45	to 1.40
Sept. 1	Shapes	1.45	to 1.40
" 22	Sheets	2.15	to 2.05
Oct. 2	Tin plates	3.60	to 3.50
" 3	Wire nails	1.65	to 1.60
" 16	Plates	1.40	to 1.35
" 21	Plates	1.35	to 1.30
" 23	Shapes	1.40	to 1.35
" 24	Sheets	2.05	to 2.00
" 27	Pipe	2½% extra discount	
" 28	Bars	1.40	to 1.35
Nov. 3	Tin plate	3.50	to 3.40
" 7	Bars	1.35	to 1.30
" 17	Sheets	2.00	to 1.95
1913—			
" 25	Bars	1.30	to 1.25
" 25	Plates	1.30	to 1.25
" 25	Shapes	1.35	to 1.30
" 28	Wire nails	1.60	to 1.55
Dec. 2	Sheets	1.95	to 1.90
" 3	Shapes	1.30	to 1.25
" 4	Plates	1.25	to 1.20
" 11	Bars	1.25	to 1.20
" 22	Shapes	1.25	to 1.20
" 31	Sheets	1.90	to 1.80
1914—			
Jan. 6	Wire nails	1.55	to 1.50
" 7	Sheets	1.80	to 1.85
" 13	Wire nails	1.50	to 1.55
" 23	Sheets	1.85	to 1.90
" 30	Sheets	1.90	to 1.95
Feb. 2	Pipe	80%	to 79½%
" 2	Wire nails	1.55	to 1.60
" 4	Shapes	1.20	to 1.25
Mar. 9	Shapes	1.25	to 1.20
" 20	Plates	1.20	to 1.15
April 1	Bars	1.20	to 1.15
" 8	Sheets	1.95	to 1.90
" 17	Shapes	1.20	to 1.15
" 20	Pipe	79½%	to 80%
" 27	Sheets	1.90	to 1.85
" 29	Tin plates	3.40	to 3.30
May 19	Bars	1.15	to 1.12½
" 22	Wire nails	1.60	to 1.55
" 26	Shapes	1.15	to 1.12½
" 29	Plates	1.12½	to 1.10
" 29	Wire nails	1.55	to 1.50
June 9	Sheets	1.85	to 1.80
" 19	Bars	1.12½	to 1.10
" 19	Shapes	1.12½	to 1.10
July 20	Wire nails	1.50	to 1.55
" 21	Bars	1.10	to 1.15
" 21	Shapes	1.10	to 1.15
" 23	Plates	1.10	to 1.15
" 30	Tin plate	3.30	to 3.35
Aug. 5	Tin plate	3.25	to 3.40
" 6	Sheets	1.80	to 1.85
" 11	Sheets	1.80	to 1.85
" 11	Bars	1.15	to 1.20
" 11	Shapes	1.15	to 1.20
" 14	Tin plate	3.40	to 3.60
" 21	Wire nails	1.55	to 1.60
" 31	Sheets	1.90	to 2.00

IRON AND STEEL.

THE RISE OF STEEL PIPE

The supplanting of rolled iron by rolled steel, a matter of great historical interest and occasionally also of commercial interest, proceeded by stages, and a few well marked eras can be discerned. It should be remembered that the supplanting has not occurred with respect to all the rolled products of to-day. For instance, there remains large tonnage of iron merchant bars, while on the other hand in the case of structural shapes, there was no important supplanting for the simple reason that the production of structural shapes was very small at the time steel was generally supplanting iron.

In three great products the supplanting was most marked, in rails, nails and in wrought pipe. The replacement of iron by steel in the case of rails was quick and decisive, for the reason that the steel, being made hard, was so vastly superior to iron that there was no comparison, and if steel rails had been cheap enough the disappearance of iron rails would have been almost instantaneous. As it was, the change was so sudden that in 1876 iron rails exceeded steel rails by 13 per cent and in the following year steel rails exceeded iron rails by 30 per cent, marking the date of transition about January 1, 1877. In the third year prior to that date, 1874, steel rails, comprised 20 per cent of the total rails, while in the third year following, 1879, steel rails were 62 per cent of the total.

As the entrance of steel into rail manufacture occurred by reason of the hardness of steel, it was not until years afterwards that the next supplanting occurred. This was in nails, and the era was divided into two periods, the first covering the rise of the steel cut nail, to the disadvantage of the iron cut nail, the second covering the rise of the wire nail, to the disadvantage of any cut nail. In 1886 iron cut nails exceeded steel cut nails by 75 per cent, while in the next year steel cut nails slightly exceeded iron cut nails, thus marking the early or middle part of 1887 as the time at which steel cut nails began to preponderate over iron cut nails. The wire nail was just then in its infancy, the production in 1886 being less than 10 per cent as great as the production of cut nails, but by 1892 wire nails passed cut nails the production of cut nails by that time having become preponderately of steel. Statistics are lacking to indicate the time when steel supplanted iron for wire in general, but it is to be presumed that the iron wire rod became a negligible item very early in the nineties.

The rise of wrought steel pipe was of particular interest on account of the circumstances. In the case of rails, the rise of steel was rapid because steel was immediately recognized as the superior material. In the case of wrought pipe the eventual rise was rapid because for some time it was thought steel was unsuited, so that when finally steel was shown to be entirely adapted to pipe manufacture the growth in its use was rapid because it had so long been retarded. It was thought in the early and middle eighties that steel would not weld satisfactorily, but in August, 1887, Thomas J. Bray, superintendent of the tube department of the Riverside works at Wheeling, successfully made steel pipe and the company immediately decided to abandon iron and engage in the manufacture of steel pipe. So important was the development that it was made the subpect of a paper read by Mr. Bray on January 17, 1888, before the Engineers' Society of Western Pennsylvania.

Statistics are lacking to show precisely the progress of steel in wrought pipe manufacture, for the reason that it was not until 1905 that separate statistics of skelp production were gathered. A rough estimate of the production of wrought iron pipe in 1887 may be made, as the total production of "bar, rod, hoop, skelp and shaped iron" was given for that year at 1,917,403 net tons, and from this it may be inferred that wrought iron pipe did not exceed about half a million gross tons at the outside. The production of steel pipe, beginning practically in 1888, must have increased rapidly, for in 1905, the first year for which separate skelp statistics were gathered, the production of steel skelp was 983,198 gross tons. With a few hundred tons made experimentally in 1887, practically the million ton mark was reached 18 years later. During that period the production of wrought iron was probably almost stationary, for we find that in 1905 the production of iron

skelp was 452,796 gross tons, or 4.4 per cent of the tonnage estimated for 1887. Since 1907, however, the production of wrought pipe has distinctly decreased, according to the statistics, the current fact being that there was a decrease in 1906 as compared with 1905, while in 1907 production rose almost to the 1905 level. The statistics of iron and steel skelp production are given below, in gross tons:

Skelp Production.

	Iron.	Steel.	Total.
1905	452,797	983,198	1,435,995
1906	391,517	1,137,068	1,528,585
1907	444,536	1,358,091	1,802,627
1908	297,049	853,534	1,150,583
1909	370,151	1,663,230	2,033,381
1910	350,578	1,477,616	1,828,194
1911	322,397	1,658,276	1,980,673
1912	327,042	2,119,804	2,446,846
1913	312,746	2,189,218	1,501,964

Thus we find that the production of wrought steel pipe increased from a few hundred tons in 1887 to about 950,000 tons in 1905, eighteen years, and then more than doubled in eight years following, reaching over 2,000,000 gross tons in 1913, a gain of 122 per cent in the past eight years. The growth is a remarkable one. In most steel products a doubling of tonnage in less than ten years means that the product is a relatively new one, just finding its field. Thus the production of structural shapes increased very rapidly in the early years because the steel skyscraper came suddenly into vogue. The production of nails, on the other hand, taking cut and wire nails together, increased with relative slowness, since nails have been used from time immemorial. The case of steel pipe is peculiar since wrought pipe, made of iron, is no new thing but has been used for decades. The inference to be drawn is that the employment of steel has made wrought pipe useful in fields in which the old wrought iron product would have been less desirable.

The "Iron Age's" August statistics of the production of pig iron indicate an improvement in output over July. Statistics show a total of 1,995,261 tons, or 64,360 tons a day, against 63,150 tons a day in July. Ten furnaces were blown out last month and eight were blown in, a net loss of two. The net increase of about 1,200 tons a day represents 1,900 tons a day increase by steel works furnaces and 700 tons a day decrease in merchant furnace output.

CAR BUYING.

Freight cars ordered:		
First half 1912	85,000	
Second half 1912	150,000	
Year 1912		235,000
First half 1913	114,000	
Second half 1913	33,000	
Year 1913		147,000
January, 1914	10,000	
February	13,000	
March	7,000	
April	10,000	
May	9,000	
June	15,000	
July	6,800	
August	2,000	
Eight months, 1914		72,800
Equialent rate per year		109,000

Lake Superior Iron Ore.

(On Lake Erie Dock).

	—Old Range—		—Mesabi—	
	Bess.	Non-Bes.	Bess.	Non-Bes.
1886	5.00	4.50		
1887	6.00	5.00		
1888	4.75	4.00		
1889	5.00	3.75		
1890	6.00	4.50		
1891	4.75	3.75		
1892	4.50	3.75		
1893	4.00	3.25		
1894	2.75	2.00	2.50	1.75
1895	2.90	2.25	2.25	1.90
1896	4.00	2.60	3.25	2.40
1897	2.65	2.25	2.10	1.80
1898	2.75	1.80	2.15	1.70
1899	2.80	2.00	2.25	1.90
1900	5.50	4.15	4.40	4.00
1901	4.25	2.85	2.75	2.35
1902	4.25	3.00	3.00	2.60
1903	4.50	3.60	4.00	3.20
1904	3.00	2.60	2.75	2.35
1905	3.75	3.20	3.50	3.00
1906	4.25	3.70	4.00	3.50
1907	5.00	4.20	4.75	4.00
1908	4.50	3.70	4.25	3.50
1909	4.50	3.70	4.25	3.50
1910	5.00	4.20	4.75	4.00
1911	4.50	3.70	4.25	3.50
1912	3.75	3.05	3.50	2.85
1913	4.40	3.60	4.15	3.40
1914	3.75	3.05	3.50	2.85

Particularly 1894 to 1899 some grades sold at materially higher prices. Base ore content (natural state) 1906 and some previous years; Bessemer, 56.70; non-Bessemer, 52.80; 1907 and later: Bessemer, 55.00; non-Bessemer, 51.50.

COMPOSITE STEEL.

Computation for September 1, 1914:

Pounds.	Group.	Price.	Extension.
25	Bars	1.20	3.000
15	Plates	1.20	1.800
10	Shapes	1.20	1.800
5	Pipe (6-in.)	1.95	2.925
10	Wire nails	1.60	2.400
1	Sheets (28 bl.)	2.00	2.000
4	Tin plates	3.60	1.800
10 pounds			15.725
One pound			**1.5725**

(Averaged from daily quotations.)

	1910.	1911.	1912.	1913.	1914.
Jan...	1.8625	1.7415	1.5123	1.7737	1.5394
Feb..	1.8475	1.7520	1.4878	1.7625	1.5794
Mar..	1.8475	1.7590	1.4790	1.7646	1.5638
April.	1.8400	1.7600	1.5206	1.7742	1.5337
May.	1.8325	1.7510	1.5590	1.7786	1.5078
June	1.7955	1.6817	1.5794	1.7719	1.4750
July.	1.7755	1.6701	1.6188	1.7600	1.4805
Aug..	1.7550	1.6394	1.6784	1.7400	1.5421
Sept.	1.7470	1.6090	1.7086	1.7093	.
Oct..	1.7350	1.5461	1.7588	1.6779	.
Nov..	1.7305	1.4930	1.7750	1.6293	.
Dec..	1.7380	1.4812	1.7789	1.5558	.
Year	1.7922	1.6570	1.6214	1.7241	.

SCRAP IRON & STEEL PRICES.

	Melting Steel. Pitts.	Bundled Sheet, Pitts.	No. 1 R.R. Wrought, Pitts.	No. 1 Cast, Pitts.	No. 1 Heavy Steel, Phila.	Melt'g. Ch'go.
1912—						
Year	13.76	11.92	14.16	13.28	13.82	12.30
1913—						
Jan.	15.00	13.10	15.35	14.65	14.50	12.75
Feb.	14.35	12.00	15.35	14.65	13.25	12.65
Mar.	14.35	11.60	15.35	14.60	13.60	12.50
Apr.	14.25	10.50	15.50	14.50	13.75	12.60
May	13.50	10.00	15.00	14.25	12.25	11.50
June	13.20	9.25	14.25	13.50	11.50	10.75
July	12.50	8.75	13.35	12.30	11.15	10.60
Aug.	12.40	8.25	13.25	12.50	11.85	10.75
Sep.	12.60	8.00	13.00	12.50	12.25	10.60
Oct.	12.25	7.40	13.00	12.40	11.20	10.35
Nov.	11.40	6.75	11.85	12.00	10.30	10.25
Dec.	11.00	6.40	11.65	11.60	9.75	9.25
Year	13.07	9.33	13.91	13.29	12.12	11.21
1914—						
Jan.	11.25	7.00	12.20	12.00	10.50	9.25
Feb.	12.00	8.25	12.80	12.50	11.50	10.70
Mar.	12.25	9.00	12.85	12.40	11.50	10.50
Apr.	12.25	9.00	12.00	12.15	10.80	10.00
May	11.75	9.10	11.75	12.25	10.60	10.00
June	11.75	9.10	11.75	12.25	10.50	9.80
July	11.75	8.50	11.75	11.50	10.60	9.75
Aug.	11.50	8.50	11.75	11.25	10.75	9.75

COMPOSITE PIG IRON.

Computation for September 1, 1914:

One ton Bessemer, valley	$14.00
Two tons basic, valley (13.00)	26.00
One ton No. 2 foundry, valley	13.00
One ton No. 2 foundry, Philadelphia	14.45
One ton No. 2X foundry, Buffalo	13.25
One ton No. 2 foundry, Cleveland	13.75
One ton No. 2 foundry, Chicago	14.00
Two tons No. 2 Southern foundry, Cincinnati (13.25)	26.50
Total, ten tons	$134.95
One ton	**$13.495**

Averaged from daily quotations:

	1910.	1911.	1912.	1913.	1914.
Jan...	17.598	14.375	13.420	17.391	13.492
Feb..	17.215	14.340	13.427	17.140	13.721
Mar..	16.702	14.425	13.581	16.775	13.843
April	16.315	14.375	13.779	16.363	13.850
May .	15.750	14.242	13.917	15.682	13.808
June.	15.320	14.032	14.005	14.968	13.606
July .	15.131	13.926	14.288	14.578	13.520
Aug..	14.727	13.874	14.669	14.565	13.516
Sep...	14.612	13.819	15.386	14.692	.....
Oct...	14.435	13.692	16.706	14.737	.....
Nov..	14.415	13.532	17.226	14.282	.....
Dec..	14.408	13.430	17.475	13.838	.....
Year.	15.552	14.005	14.823	15.418	.....

UNFINISHED STEEL AND IRON BARS.

(Averaged from daily quotations.)

	Billets, Pitts.	Sheet bars, Pitts.	Rods, Pitts.	— Iron bars, deliv.— Phila.	Pitts.	Ch'go.
1913—						
Mar.	29.00	30.00	30.00	1.65	1.65	1.58
Apr.	27.50	28.00	30.00	1.68	1.65	1.58
May	27.00	27.50	30.00	1.68	1.65	1.55
June	26.50	27.50	29.00	1.61	1.65	1.50
July	26.50	27.50	28.50	1.55	1.65	1.50
Aug.	25.75	26.50*	28.00	1.42	1.62	1.44
Sep.	24.00*	25.00*	27.37	1.33	1.59	1.37
Oct.	22.50	23.25	26.50	1.32	1.54	1.27
Nov.	20.50	21.50	26.00	1.30	1.45	1.15
Dec.	20.00	21.00	25.25	1.25	1.37	1.12
Year	25.55	26.43	28.39	1.51	1.59	1.45
1914—						
Jan.	20.00	20.25*	25.75	1.24	1.35	1.11
Feb.	21.00	22.00	26.00	1.28	1.35	1.14
Mar.	21.00	22.00	26.00	1.28	1.35	1.15
Apr.	20.75	21.75	25.50	1.23	1.31	1.14
May	20.00	21.00	26.00	1.23	1.29	1.10
June	19.50	20.35	25.00	1.23	1.25	1.08
July	19.50	20.00	25.00	1.19	1.25	1.06
Aug	20.17	21.08	25.25	1.18	1.25	1.07

* Premiums for Bessemer.

STATISTICS ON FINISHED IRON AND STEEL.

While for a representation of our "steel production" the statistics of production of steel ingots and castings are usually cited, the more illuminating figures, from a market standpoint, are the statistics of rolled iron and steel, for they deal substantially with the commercial material. Ingots are rarely sold, while bars, plates, shapes, wire, pipe, sheets, etc., are regular articles of commerce, and the statistics of rolled material practically represent these commercial articles. The statistics, it is true, take cognizance of wire rods rather than of drawn wire, and of skelp rather than pipes and tubes, but the difference in tonnage is very slight.

How wide is the difference in figures is shown by the fact that while the production of steel ingots in 1913 was 30,280,130 gross tons, the production of rolled steel from this tonnage of ingots was only 23,-112,986 tons, showing a difference of 7,167,-144 tons, or 23.7 per cent. The material as sold by steel mills was not the 30,000,000 tons of ingots, and it was not even the 23,-112,986 tons of rolled steel, because there were further losses after rolling. Most of the rods, for instance, were drawn into wire before sale, involving a slight loss in weight. The great bulk of the skelp was welded into pipe, with loss in cutting off the ends, and some of the plate and shape tonnage was fabricated, involving a slight loss. Thus the tonnage of merchantable steel produced was somewhat under 23,-000,000 tons.

It is well to recur again to the subject of scrap, and the more or less popular superstition that the open-hearth steel industry consumes millions of tons of old material. The loss in weight from ingot to rolled steel in 1913, 7,167,144 tons, was in a very small measure a loss of steel as steel; the great bulk of the material became new scrap, used at once in the open-hearth furnace. Apart from the tonnage thus produced, there was a considerable tonnage of new scrap produced in fabrication after rolling, in pipe mills, wire mills, structural and boiler shops, etc. Altogether we think a conservative estimate is not far from 7,000,000 tons of new steel scrap produced in 1913 and consumed in open-hearth furnaces. The production of basic and acid open-hearth steel ingots and castings was 21,599,931 tons, so that the production of new steel scrap was nearly one-third as great. As noted a month ago in discussing the ingot statistics, the production of basic pig iron in 1913 was 62 per cent of the production of basic open-hearth ingots and castings. Approximately the same relation doubtless held good with respect to the much smaller production of acid open-hearth steel, this branch of the industry consuming Bessemer and low-phosphorus pig iron instead of basic.

With these statistics before us, it is quite clear that the much talked of old material really cuts a very small figure in the open-hearth steel industry. There seems to be hardly any room at all for it, considering the statistics just cited. There is probably nearly half a dozen times as much new scrap as old scrap consumed by the open-hearth steel furnaces.

BRITISH IRON AND STEEL EXPORTS

According to the Board of Trade returns, in tons of 2,240 pounds:

1912—	Pig iron.	Rails.	Tin plates.	Total*
Nov. ..	88,006	30,996	45,534	428,855
Dec. ..	82,935	29,799	35,920	391,128
Year	1,262,783	407,175	481,123	4,933,112
1913—				
Jan. ..	101,964	35,523	46,260	448,186
Feb. ..	63,961	41,849	33,374	363,551
Mar. ..	90,012	34,064	41,579	398,621
April ..	101,413	46,081	41,882	470,040
May ..	97,093	45,025	50,441	463,197
June ..	91,913	52,073	41,483	427,148
July ..	96,135	53,570	43,166	455,626
Aug. ..	101,843	44,637	35,274	395,656
Sept. ..	106,525	26,283	36,572	394,849
Oct. ..	99,588	40,625	40,733	435,534
Nov. ..	100,235	40,140	44,317	430,113
Dec. ..	74,133	40,744	38,840	373,354
Year	1,124,815	500,614	494,921	5,050,919
1914—				
Jan. ..	82,182	57,904	43,164	467,449
Feb. ..	59,832	35,484	41,744	353,861
Mar. ..	92,364	40,207	40,863	414,902
April ..	93,396	30,682	44,296	394,535
May ..	95,037	56,881	48,628	437,648
June ..	88,569	39,700	36,565	356,066
July ..	74,617	43,133	47,237	385,301
7 mos..	585,997	303,991	302,497	2,819,762

x Includes scrap, pig iron, rolled iron and steel cast, and wrought iron manufactures, bolts, nuts, etc. but, not finished machinery, boilers, tools, etc.

IRON AND STEEL IMPORTS AND EXPORTS.

VALUE OF TONNAGE AND NON-TONNAGE.

	1909.	1910.	1911.	1912.	1913.	1914.
January	$10,329,388	$14,513,394	$18,738,391	$18,451,914	$25,141,409	$16,706,836
February	10,947,159	13,949,082	18,690,792	21,801,570	24,089,871	16,520,260
March	13,873,746	17,253,503	22,591,991	24,474,799	27,221,210	20,551,137
April	13,058,197	16,529,260	24,916,912	26,789,853	27,123,044	20,639,569
May	12,964,367	17,658,042	20,616,795	28,050,247	26,718,970	19,734,045
June	13,779,736	16,503,204	20,310,653	24,795,802	25,228,346	18,927,958
July	11,866,772	16,108,102	17,454,772	24,917,952	24,170,604	.....
August	14,134,487	17,628,537	20,013,557	25,450,107	23,947,440	.....
September ...	12,966,908	16,776,178	19,875,308	23,286,040	22,831,082	.....
October	14,249,598	17,452,085	20,220,833	25,271,559	25,189,745	.....
November ...	14,434,690	18,594,806	20,823,061	26,406,425	20,142,141	.....
December ...	15,069,246	18,300,710	22,186,996	23,750,864	22,616,701	.....
Totals ...	$157,674,394	$201,271,903	$249,656,411	$289,128,420	$294,435,060	$113,079,805

EXPORTS OF TONNAGE LINES— Gross Tons.

	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January	102,630	74,353	70,109	118,681	152,362	151,575	249,493	118,770
February	87,912	81,773	84,837	110,224	150,919	204,969	241,888	121,206
March	112,787	96,681	94,519	124,980	216,360	218,219	257,519	159,998
April	132,790	93,285	100,911	117,921	228,149	267,313	259,689	161,952
May	91,543	64,041	109,808	135,306	178,589	307,656	242,353	139,107
June	92,996	69,770	114,724	120,601	174,247	273,188	243,108	144,003
July	122,240	86,796	100,850	127,578	162,855	272,778	237,159	.....
August	118,792	86,244	105,690	131,391	177,902	282,645	209,856	.....
September	114,819	76,732	97,641	119,155	181,150	248,613	213,058	.....
October	123,170	85,766	110,821	129,828	186,457	251,411	220,495	.....
November	116,309	71,130	116,105	155,138	187,554	233,342	175,961	.....
December	86,019	77,659	137,806	150,102	190,854	235,959	195,719	.....
Totals	1,301,979	961,242	1,243,567	1,540,895	2,187,724	2,948,466	2,759,232	845,036

IRON ORE IMPORTS.

	1911.	1912.	1913.	1914.
Jan. ...	102,600	154,118	175,463	101,804
Feb. ...	94,820	129,693	188,734	112,574
Mar. ..	134,785	157,469	164,865	68,549
April ..	133,900	178,502	174,162	111,812
May ..	217,467	194,482	191,860	125,659
June ...	118,296	180,122	241,069	188,647
July ...	200,845	185,677	272,017	.....
Aug. ...	175,183	178,828	213,139	.....
Sep. ...	184,456	180,571	295,424	.....
Octt. ..	172,459	202,125	274,433	.....
Nov. ..	128,019	163,017	179,727	.....
Dec. ..	148,902	199,982	223,933	.....
Total	1,811,732	2,104,576	2,594,826	709,045

IRON AND STEEL IMPORTS.

	1910.	1911.	1912.	1913.	1914.
Jan..	56,207	33,071	20,008	21,740	17,835
Feb..	43,613	20,812	11,622	25,505	14,309
Mar..	54,176	23,533	15,466	27,467	27,829
April	47,698	22,392	12,481	25,742	30,585
May.	42,569	23,347	15,949	28,728	28,169
June.	30,322	29,399	21,407	36,597	23,076
July	41,933	15,782	17,882	39,694	.....
Aug..	36,879	10,944	20,571	18,740	.....
Sep..	30,961	14,039	18,740	19,941	.....
Oct..	31,455	21,035	25,559	20,825	.....
Nov..	40,585	13,880	24,154	25,809	.....
Dec..	31,575	19,665	21,231	26,453	.....
Total	487,973	256,903	225,072	317,244	141,805

COPPER.

THE COPPER SITUATION.

August opened with the market completely stagnant and upset by the outbreak of war in Europe, and the closing of the London Metal Exchange, which has remained closed ever since, and is likely to so continue for some time to come. As about one-half of all the Copper America produces has in recent years gone to Europe, and principally to Germany, it can be seen at a glance what a calamity had come over Copper producing trade, and as there was no prospect of an early settlement the Producers at once started to carry out a drastic curtailment in output. This was the only thing that they could do, as the collapse in financial affairs would make it difficult even for the strongest interests to increase and carry greater surplus stocks. This curtailment has resulted in a decreased output at present of fully 50%; and this has kept prices more or less steady at from a nominal price of 12¾c delivered 30 days for Electrolytic at the opening of the month, to 12½c at the close. Producers have made no efforts to make sales and second hands seeing the reduced output have been very shy about selling the market for a decline.

Business has been at a virtual standstill outside of sales to England where for a time there was a rush to get copper from America, but which demand quickly subsided, and a small demand from our consumers on a hand to mouth trade. Our exports for the month to England, and a few neutral ports were 19,676 tons, or about 2/3 our normal average monthly exports to Europe during the past three years, which under the circumstances is very good, considering that Germany, our largest customer was entirely cut off.

There has undoubtedly been an increase in stocks in producers hands, since the decrease in the Smelter production that began with the war would take until around the present time to be fully reflected in the refinery output, but what that increase is, is pure guesswork, as the producers for the first time since they started issuing statistics, decided wisely under the extraordinary situation, not to issue any statement in August and they have also issued no September statement.

The domestic consumption of copper has undoubtedly been curtailed and judging from the iron and steel industry and other metals, has not been probably over 65% of normal. But it must be remembered that it was little better than this for some months before the war.

It will be interesting to see if our exports to England and neutral ports will make in September as good a showing as in August; but it will be a long while before our best customer Germany, will be again available, and therefore a long while before the industry can be a prosperous one or run at full production. Costs of production have been greatly increased by half time operations, and price is so low, and the producers

COPPER PRICES IN AUGUST.

	New York		
	Lake. Cents.	Electro. Cents.	Casting. Cents.
1	...	...	...
2	...	...	...
3	13.00	12.75	12.62½
4	12.81¼	12.62½	12.43¾
5	12.81¼	12.56¼	12.40
6	12.81¼	12.56¼	12.40
7	12.81¼	12.56¼	12.40
8	...	...	...
9	...	...	...
10	12.62½	12.43¾	12.25
11	12.62½	12.37½	12.18¾
12	12.62½	12.37½	12.18¾
13	12.68¾	12.43¾	12.25
14	12.68¾	12.43¾	12.25
15	...	...	...
16	...	...	...
17	12.62½	12.37½	12.18¾
18	12.56¼	12.31¼	12.15
19	12.56¼	12.25	12.15
20	12.62½	12.31¼	12.20
21	12.62½	12.31¼	12.20
22	...	...	...
23	...	...	...
24	12.62½	12.31¼	12.20
25	12.62½	12.31¼	12.20
26	12.62½	12.31¼	12.20
27	12.62½	12.35	12.25
28	12.62½	12.40	12.30
29	...	...	...
30	...	...	...
31	12.62½	12.35	12.25
High	13.00	12.75	12.62½
Low	12.50	12.20	12.10
Average	12.678	12.415	12.27

COPPER—LEAD

so fully able to carry the situation, now that they have reduced the output to meet the demand, that there is every prospect that the metal will not decline much if any under present prices. The American consumption is certain to improve and promises to be very active this winter, and when the war is over it is easy to see that an enormous demand must then be faced from Germany and the other countries who have been cut off from supplies. We say this not forgetting that they will be in an exhausted position financially and otherwise. But they will be still in the civilized world, and copper is a growing necessity for all that civilization and human material progress stands for.

The Waterbury averages for the month of August, 1914, were as follows:

Lake Ingot Copper 13.00
Brass Mill Spelter 5.66

	Copper — Lake		Copper — Electro	Spelter	
	1913.	1914.	1914.	1913.	1914.
Jan...	17.00	14.75	.....	7.56	5.54
Feb...	15.50	15.12½	.....	6.81	5.70
Mar...	15.12½	15.00	14.50	6.56	5.59
Apr...	15.75	14.87½	14.37½	6.08	5.50
May..	15.87½	14.75	14.25	5.77	5.38
June.	15.37½	14.37½	13.87½	5.50	5.37
July.	14.75	14.12½	13.62½	5.61	5.26
Aug. .	15.62½	15.00	....	5.99	5.66
Sep...	16.87½	.....	....	6.13	....
Oct...	16.87½	.....	....	5.74	....
Nov. .	16.25	.....	.....	5.60	....
Dec. .	15.00	.....	.....	5.44	....
Year.	15.83	.....	.....	6.06½	....

LEAD (Monthly Averages.)

	—New York —			—St. Louis—		
	1912	1913.	1914.	1912.	1913.	1914.
Jan.	4.44	4.35	4.11	4.34	4.20	3.99½
Feb.	4.04	4.35	4.06	3.99	4.20	3.95
Mar.	4.07	4.35	3.97	4.06	4.21	3.83
Apr.	4.20	4.40	3.82	4.14	4.25½	3.70
May	4.20	4.36	3.90	4.09	4.22	3.81
June	4.39½	4.35	3.90	4.31	4.21	3.80
July	4.73	4.37	3.90	4.60	4.25	3.75
Aug.	4.56½	4.63	3.90	4.46	4.56	3.73½
Sep.	5.05	4.75	.	4.94	4.62	.
Oct.	5.10	4.45	.	4.91	4.31	.
Nov.	4.69	4.34		4.50	4.18	.
Dec.	4.36	4.06		4.19	3.94	.
Year	4.48½	4.40		4.38	4.26	

* Trust price.

THE LEAD SITUATION.

Lead has been the only metal that has been unaffected by the war, and throughout the entire month prices have remained unchanged at 3.90c N. Y. the trust price, and 3.75c E. St. Louis. America being a producer of all she requires, and only an occasional exporter, it can readily be seen why this was the case.

There was a sharp spot advance in London, but it did not hold, and very little exports from our side followed.

While there has undoubtedly been some curtailment of output on account of the financial situation, there has been a curtailment of consumption for the same reason. The price for lead is low, and with any increase in consumption and general improvement in the business situation, prices might easily go higher. But the public is quite in the dark as to the statistical position on account of the Trust control and absence of knowing the stocks, output, etc., and therefore very wisely continue to only buy for their actual requirements.

COMPOSITE METAL PRICES.

Computation for September 1, 1914:

Pounds.	Metal.	Price.	Extension.
2½	Spelter (St. Louis)	5.85	14.625
4	Lead (St. Louis)	3.73¾	14.950
3	Copper (Electro)	12.30	36.900
½	Tin (New York)	38.00	19.000
10 pounds	.....	.....	85.475
One pound	.....		**8.5475**

Monthly averages:

	1910.	1911.	1912.	1913.	1914.
Jan. .	9.084	8.908	9.778	10.987	9.105
Feb. .	8.881	8.915	9.677	10.260	9.294
Mar. .	8.778	8.797	9.886	10.024	9.026
April .	8.568	8.795	10.277	10.198	8.844
May .	8.413	8.795	10.468	10.163	8.678
June .	8.362	9.154	11.014	9.648	8.431
July .	**8.338**	9.100	11.043	9.398	8.345
Aug. .	8.479	9.188	11.092	10.025	9.111
Sept. .	8.569	8.928	11.575	10.350	.....
Oct. .	8.747	8.990	11.596	10.029	.....
Nov. .	8.888	9.306	11.372	9.590	.....
Dec. .	8.881	9.675	11.219	9.053	.....
Year .	8.665	9.046	10.750	9.977	.....

COPPER.

LAKE COPPER PRICES.

Average monthly prices of Lake Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.93	12.75	14.37½	16.89	14.76½
Feb.	13.76½	12.73	14.38½	15.37½	14.98
Mar.	13.71½	12.56	14.87	14.96	14.72
April	13.31	12.41	15.98	15.55	14.68
May	12.98	12.32	16.27	15.73	14.44
June	12.83½	12.63	17.43	15.08	14.15
July	12.62½	12.72	17.37	14.77	13.73
Aug.	12.78½	12.70	17.61	15.79	12.68
Sept.	12.72	12.57	17.69	16.72	.....
Oct.	12.90	12.47½	17.69	16.81	.....
Nov.	13.00½	12.84	17.66	15.90	.....
Dec.	12.92	13.79	17.62½	14.82	.....
Av..	13.12	12.71	16.58	15.70	.....

ELECTROLYTIC COPPER PRICES.

Average monthly prices of Electrolytic Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.68	12.53	14.27	16.75½	14.45
Feb.	13.51	12.48	14.26	15.27	14.67
Mar.	13.42½	12.31	14.78	14.92½	14.33½
April	12.93	12.15½	15.85	15.48	14.34
May	12.67	12.13	16.16	15.63	14.13
June	12.59	12.55	17.29	14.85	13.81
July	12.36½	12.62½	17.35	14.57	13.49
Aug.	12.56	12.57½	17.60	15.68	12.41½
Sept.	12.49	12.39	17.67	16.55	.....
Oct.	12.77½	12.36	17.60	16.54	.....
Nov.	12.87½	12.77	17.49	15.47	.....
Dec.	12.72½	13.71	17.50½	14.47	.....
Av. .	12.88	12.55	16.48	15.52	.....

CASTING COPPER PRICES.

Average monthly price of Casting Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.60	12.39	14.02	16.57	14.27½
Feb.	13.41	12.33	14.02	15.14	14.48
Mar.	13.31	12.20	14.53	14.76	14.18
April	12.87	12.07	15.72½	15.33	14.18
May	12.62	12.08	16.01	15.45½	14.00
June	12.52	12.40	17.08	14.72	13.65
July	12.30	12.49½	17.09	14.40½	13.34½
Aug.	12.48	12.42	17.35	15.50	12.27
Sept.	12.46	12.23	17.51	16.37½	.....
Oct.	12.70	12.21	17.44	16.33	.....
Nov.	12.82	12.61	17.34	15.19	.....
Dec.	12.64	13.56½	17.34	14.22	.....
Av. .	12.81	12.42	16.29	15.33	.....

† Bremen stocks included.

VISIBLE SUPPLY OF COPPER.

Visible supply of copper at the end of each month based on the returns of the Copper Producers' Association and H. R. Merton & Company.

1910—	Stocks in American Producers' hands.	European Visible Supply.	Combined Visible Supply.
May ..	160,425,973	239,265,600	399,691,573
June ..	168,386,017	232,863,680	401,249,697
July ..	170,640,678	222,295,360	392,936,038
Aug. ..	168,881,245	218,413,440	387,294,685
Sept. ..	148,793,714	210,472,640	359,266,354
Oct. ..	139,261,914	198,065,280	337,327,194
Nov. ..	130,389,069	193,200,000	323,589,069
Dec. ..	122,030,195	187,705,280	309,735,475
1911—			
Jan. ..	142,439,490	*236,976,320	379,415,810
Feb. ..	156,637,770	226,210,880	382,848,650
Mar. ..	162,007,934	223,030,080	385,038,014
April ..	165,555,908	212,280,320	377,836,228
May ..	165,995,932	202,413,120	368,409,052
June ..	157,434,164	195,937,280	353,371,444
July ..	137,738,858	192,584,000	330,322,858
Aug. ..	133,441,501	191,215,360	324,656,861
Sept. ..	140,894,856	191,945,600	332,840,456
Oct. ..	134,997,642	176,816,640	311,814,282
Nov. ..	111,785,188	164,151,680	275,936,868
Dec. ..	89,454,695	158,329,920	247,784,615
1912—			
Jan. ..	66,280,643	153,820,800	220,101,443
Feb. ..	62,939,988	141,135,680	204,075,668
Mar. ..	62,367,557	136,808,000	199,175,557
April ..	65,066,029	134,155,840	199,221,869
May ..	49,615,643	117,797,120	167,412,763
June ..	44,335,004	107,817,920	152,152,924
July ..	50,280,421	113,290,240	163,570,661
Aug. ..	46,701,374	113,783,040	160,484,414
Sept. ..	63,065,587	107,403,520	170,469,107
Oct. ..	76,744,964	103,801,600	180,546,564
Nov. ..	86,164,059	96,938,240	183,102,299
Dec. ..	105,312,582	96,857,600	202,170,182
1913—			
Jan. ..	123,198,332	96,546,240	219,744,572
Feb. ..	122,302,198	100,067,520	222,369,718
Mar. ..	104,269,270	†100,965,760	205,235,030
April ..	75,549,108	98,374,720	173,923,828
May ..	67,474,225	90,018,880	157,493,105
June ..	52,904,606	85,559,040	138,463,646
July ..	53,594,945	79,804,480	133,399,425
Aug. ..	38,314,037	76,260,800	114,574,837
Sept. ..	29,793,094	62,314,560	92,107,654
Oct. ..	32,566,382	57,854,480	90,420,862
Nov. ..	47,929,429	59,935,680	107,865,109
Dec. ..	91,438,867	66,124,800	157,563,667
1914—			
Jan. ..	87,296,685	58,114,560	145,411,245
Feb. ..	78,371,852	60,374,720	138,746,572
Mar. ..	64,609,319	58,538,960	123,138,279
April .	70,337,001	65,582,720	135,919,721
May ..	84,342,641	72,508,800	156,851,441
June .	106,110,663	74,527,040	180,637,703
July	Statistics suspended indefinitely.		

* Hamburg and Rotterdam stocks included.

SPELTER.

THE SPELTER SITUATION.

Spelter in August opened quiet at 4.82½ f.o.b. E. St. Louis, with the market appreciative of the fact that stocks in producers' hands were around 65,000 tons, the largest in years, and that the iron and steel and brass trades, the principal consumers of the metal, were in a languid condition. However, the low price was also appreciated, and during the previous month consumers had contracted fairly for their August and September requirements.

Although the war had begun, the market the first few days in August, instead of advancing, slightly declined, but around August 7th it became known that the English Government had commandered all the spelter in England, with a view of insuring the fulfilment of government contracts requiring the metal, and a demand set in from abroad.

This was used by some of the producing interests to excite the market, and a programme of marking up price ⅛c per pound per day was put into operation.

It failed to excite the American consumer, but it excited the English buyer, and the most was made of his nervous state of mind. A premium was asked by sellers on export orders over what they would sell to domestic consumers, and prices advanced to 5.95c f.o.b. E. St. Louis. It is unknown how much metal was bought for export, but the estimates are around 15,000 tons. What we do know is that some 5,000 tons to date, since the movement began, have been shipped to England.

In the closing week of August it became evident that the foreign demand was filled, the market in London declining from scarcity prices to about normal. Some of the second hands here who had been attracted by the rise and chance to make money thereby became nervous over the cessation in export inquiry and orders, and became sellers at concessions. Our consumers showing no interest as had been their attitude, all through the rise, a decline from 5.95c f.o.b. East St. Louis took place to 5.45c f.o.b. E. St. Louis (Sept. 10th) and on the decline it has been impossible to make any sales to speak of. The situation to-day now is that unless England again becomes a buyer, we stand with stocks only reduced 15,000 tons (if that amount proves to have been bought by England), and therefore stocks still very large around 50,000 tons; Consumption for the metal in this country is less than for some time on account of the falling off in the iron, steel and brass trade; and prices ½c per pound or more higher than before the foreign demand struck us. Under the circumstances if there is not a renewal of an export demand, spelter promises to go lower.

SPELTER AND LEAD PRICES IN AUGUST.

	— Spelter —		— Lead —	
	New York.	St. Louis.	*New York.	St. Louis.
1	....	....	....	....
2	....	....	....	....
3	5.05	4.82½	3.90	3.72½
4	4.95	4.75	3.90	3.71¼
5	4.95	4.75	3.90	3.71¼
6	4.95	4.72½	3.90	3.71¼
7	5.05	4.87½	3.90	3.71¼
8	....	....	....	....
9	....	....	....	....
10	5.30	5.12½	3.90	3.72½
11	5.45	5.25	3.90	3.72½
12	5.55	5.37½	3.90	3.72½
13	5.55	5.37½	3.90	3.75
14	5.65	5.50	3.90	3.75
15	....	....	....	....
16	....	....	....	....
17	5.70	5.55	3.90	3.75
18	5.80	5.65	3.90	3.75
19	5.85	5.70	3.90	3.75
20	6.00	5.80	3.90	3.75
21	6.00	5.80	3.90	3.75
22	....	....	....	....
23	....	....	....	....
24	6.06¼	5.80	3.90	3.75
25	6.15	5.90	3.90	3.73¾
26	6.15	5.90	3.90	3.73¾
27	6.05	5.95	3.90	3.73¾
28	6.05	5.95	3.90	3.75
29	....	....	....	....
30	....	....	....	....
31	6.05	5.90	3.90	3.73¾
High	6.20	6.00	3.90	3.75
Low	4.90	4.70	3.90	3.70
Average	5.634	5.45	3.90	3.736

TIN.

MONTHLY TIN STATISTICS.

Compiled by New York Metal Exchange.

Straits shipments	Aug 1914	July 1914	Aug 1913.
To Gt. Britain	2,502	3,125	3,550
" Continent	18	1,170	555
" U. S.	795	680	1,885
Total from Straits	3,315	4,975	5,990
Australian shipments			
To Gt. Britain...	150	194	200
" U. S.	nil	nil	nil
Total Australian.	150	194	200
Consumption			
London deliveries	954	1,749	1,286
Holland deliveries	149	982	2,027
United States*...	2,900	3,900	3,600
Total	4,003	6,601	6,913
Stocks at close of month			
In London	3,835	3,763	1,470
" " (Stand)	3,188	3,316	†
" Holland ...	157	272	594
" U. S.* ...	1,077	1,297	1,408
Total	8,257	8,648	3,472
Afloat at close of month:			
To London ...	3,160	3,221	4,694
" Holland .	10	183	183
" U. S.*	2,725	2,115	2,912
Total	6,195	5,519	7,789
	1914. Aug. 31,	1914. July 31,	1913. Aug. 31,
Total visible supply	14,452	14,167	11,261

* Exclusive of Pacific ports.
† Not reported.

TIN AND SILVER. (Monthly Averages.)

	New York — Tin			Silver		
	1912.	1913.	1914.	1912.	1913.	1914.
Jan.	43.24	50.45	37.74	56.22	62.93	57.56
Feb.	43.46	48.73	39.93	59.04	61.64	57.50½
Mar.	42.86	46.88	38.08	58.37	57.87	58.07
Apr.	44.02	49.12	36.10	59.23	59.49	58.52
May	46.12	49.14	33.30	60.88	60.36	58.18
June	47.77	44.93	30.65	61.29	58.99	56.47
July	44.75	40.39	31.75	60.66	58.72	54.68
Aug.	44.75	41.72	50.59½	61.61	59.29	54.34
Sep.	49.18	42.47	.....	63.08	60.64	.
Oct.	50.11	40.50	.....	63.47	60.79	.
Nov.	49.90	39.81	.....	62.79	58.99	. .
Dec.	49.90	37.64	.....	63.37	57.76	. .
Year	46.434	4.32	.	60.83	59.79	.

VISIBLE SUPPLIES.

Total visible supply of tin at the end of each month.

	1910.	1911.	1912.	1913.	1914.
Jan...	23,024	18,616	16,707	13,971	16,244
Feb.	21,488	17,260	14,996	12,504	17,308
Mar..	20,203	16,682	15,694	11,132	16,989
Apr..	17,932	14,441	11,893	9,822	15,447
May.	18,998	15,938	14,345	13,710	17,862
June.	15,700	16,605	12,920	11,101	16,027
July .	17,433	16,707	13,346	12,063	14,167
Aug. .	17,943	16,619	11,285	11,261	14,452
Sept..	18,999	16,672	13,245	12,943	.....
Oct. .	18,183	14,161	10,735	11,857	.....
Nov..	18,875	16,630	12,348	14,470	.....
Dec..	17,194	16,514	10,977	13,893	.....
Av'ge	18,815	16,404	13,207	12,377	.....

SHIPMENTS FROM THE STRAITS.

Monthly shipments of tin from the Straits Settlements to Europe and United States, as per Powell's returns:

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	5,733	5,895	4,290	4,018	6,050	5,290
Feb.	4,033	4,147	4,290	5,260	4,660	6,520
Mar.	3,380	2,877	4,510	5,150	4,810	4,120
Apr.	4,904	4,025	3,140	4,290	4,400	4,930
May	5,184	4,965	4,310	5,760	6,160	6,900
June	4,618	4,120	5,050	4,290	4,820	5,870
July	5,644	5,040	4,660	4,580	4,770	4,975
Aug.	4,702	5,700	4,680	5,210	5,990	3,315
Sep.	5,081	4,220	5,150	5,430	5,160	.....
Oct.	3,801	4,480	4,350	4,450	5,020	.....
Nov.	5,510	4,840	5,070	5,600	5,560	.....
Dec.	5,835	4,270	5,970	4,980	5,110	.....
	58,425	54,579	55,470	59,018	62,550	
Av.	4,869	4,548	4,622	4,918	5,213	

CONSUMPTION IN THE UNITED STATES.

Monthly deliveries of tin in the United States exclusive of Pacific Coast.

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	3,200	3,500	3,200	3,700	3,700	3,600
Feb.	2,700	3,600	3,800	4,050	3,500	3,300
Mar.	3,900	4,000	5,100	4,000	3,900	4,450
Apr.	4,904	4,025	3,140	4,290	4,400	4,900
May	3,900	3,600	3,400	4,250	3,350	3,800
June	3,200	5,000	2,900	2,850	3,800	3,650
July	3,600	3,800	4,300	5,150	3,900	3,900
Aug.	3,300	3,700	3,800	4,300	3,600	2,900
Sep.	3,200	3,300	4,200	3,600	3,100	.
Oct.	4,100	3,350	3,500	3,850	3,700	.
Nov.	4,000	3,800	3,100	4,300	2,800	.....
Dec.	3,200	3,600	3,700	4,050	3,100	
	41,500	45,350	44,300	49,500	43,900	
Av.	3,458	3,779	3,692	4,125	3,658	

TIN

THE TIN SITUATION.

The American tin market during August will long stand in the annals of the trade as a record, without precedent in the past, and probably never to be repeated in the future. There has never been before, the war and financial situation that has ruled during the time in question, nor are they likely to be repeated.

Since July 31st the London and New York Metal Exchanges have been closed, and with every prospect of remaining closed during September, and all trading between America and London—the market of the world for this metal, and the sources of supply—have been almost impossible, and in this market except for the excited efforts of consumers to get spot tin to keep their works going, and efforts of importers to carry out their contracts, there has been only sensational advances and declines, on comparatively little business, even for quick deliveries, and hardly any business in future deliveries.

Closing at 33.50c for Straits tin on the last day of July, the market opened on the first business day of August (Aug. 3) at 50c with the greatest excitement and in five days was up to 65c paid, at which price it remained until August 11th. After that a decline set in, gradually at first, to 49c on the 18th, and then rapidly down to 38½c on the closing day of the month. The market has since declined to 33c (Sept. 10th.)

The fears that the metal would be unobtainable from England was partly justified early in the month, as an embargo was for some days put on all shipments by the English government and ever since it was raised, not only has it been extremely difficult to finance shipments on account of the breakdown that took place in foreign exchange, but also on the moratorium in England, making purchases almost impossible, some of these difficulties are explained as follows:

In reply to a request to define the difficulties which are obstructing the shipments of tin to America, a member of the London Metal Exchange writes us under date of August 25th that the difficulties resolve themselves chiefly as follows:

1. **"The question of Finance**—It would be by no means an easy job in the present state of affairs to find many firms among those interested in metals, who would care to deplete the balance at their banks in order to pay for and ship 50 or 100 tons of tin. You must understand this is not a question of solvency, but originates in the abnormal banking difficulties, arising from the moratorium. In most cases remittances from the other side would have to reach them in advance, and we understand in your present state of exchange this would of necessity be a costly matter.

2. **The difficulty of obtaining** 50 or 100 tons of actual tin during the present state of moratorium in metals.

3. The fact that, before they can obtain permission to ship tin to America, it is necessary **for the shippers to sign a bond forfeiting to the Government three times the value of the tin,** should it be landed at any other port than that originally on the permit. Such a necessity, though by no means probable, might easily arise."

In spite of these difficulties however, it is interesting to note that the London shipments of tin to New York have averaged in the past three weeks, 700 tons per week, which is not very much below normal conditions. It clearly indicates that the strenuous efforts being made by the trade to keep their contracts with the consumers

TIN PRICES IN AUGUST.

New York

Date.	Cents.		Cents.
1	....	17	44.00
2	....	18	49.00
3	50.00	19	49.00
4	56.00	20	46.00
5	60.00	21	42.50
6	61.00	22	....
7	65.00	23	....
8	....	24	40.00
9	....	25	39.00
10	65.00	26	39.50
11	65.00	27	39.50
12	64.00	28	39.50
13	60.00	29	....
14	50.00	30	....
15	....	31	38.50
16	....		

High	**65.00**
Low	**38.50**
Average	**50.595**

TIN ANTIMONY

and in some cases to secure the profits between prices lately ruling here as compared with in London have overcome to a large extent all difficulties.

As it turned out, however, the falling off of consumption of about 25 to 30 per cent. and strenuous efforts made by importers and the stimulus of the exceedingly high prices, enabled all August contracts to be carried out. The excitement has died away with this accomplished, supplies are coming forward more freely and intense stagnation has followed.

Buyers are overlooking that the situation may become again strained, as production in the East has been obliged, through financial reasons, to be greatly curtailed. Also the concentrates from Bolivia and South Africa, the bulk of which were smelted in Germany, have no market now. Of course production is also curtailed in these quarters. But the sentiment of the trade is very depressed, the war market is over and the "day after" effects are being felt.

Buyers act as if tin would reach them now in quantity, more than required. They may find they are making as bad a mistake as a few weeks ago when they thought they would not be able to get any.

The situation is still a very strained and doubtful one, although at present disguised by ample spot stocks and depressed surroundings, and it is well to remember that prices are September 10th over 10 cents per pound below the average of the past three years.

THE ANTIMONY SITUATION.

This metal has made a most sensational record as a result of the war, and the fears of supplies being cut off, since America produces no Antimony. From around 5½c for Chinese and Hungarian grade and around 7¼c for Cooksons, on the last day in July, prices in 10 days thereafter more than trebled in price, accompanied with wild buying for spot and futures, during which time buyers seeing market advancing by leaps and bounds lost all remembrance of how small a market exists for the metal under ordinary circumstances. But this was quickly demonstrated and when it was seen around the middle of the month, that the metal in spite of difficulties, could be brought from England and China and Japan, at once there was a collapse in the speculation and demand. On efforts to make sales, which have been almost abortive, prices declined on Cooksons from 21c to 16c, and Chinese and Hungarian grades from 17½c to 12½c at the end of the month and market has since declined to 13c for Cooksons and 10c for Chinese.

Prices are still high as compared with those ruling before the war, and unless greater difficulties regarding importations develop than exists at present, there is every prospect of further declines.

ALUMINUM, ANTIMONY AND SILVER PRICES IN AUGUST.

		Antimony			Silver	
	Aluminum.	Cooksons.	Hallletts.	Hungarian.	New York.	London.
Day.	Cts.	Cts.	Cts.	Cts.	Cts.	d.
1.	...	...	...	...	..	
2.	.....	...	....	....		
3.	18.50	7.87½	7.25	6.12½		
4.	19.50	8.25	7.62½	6.62½		
5.	20.50	9.12½	8.62½	8.12½		
6.	20.50	13.00	12.00	11.00		
7.	20.50	16.50	15.50	14.50	.	
8.	.....	....	....	....	..	
9.	.....	....	....	....	.	
10.	20.50	20.50	19.50	17.50	.	
11.	20.50	21.00	18.50	16.50	....	....
12.	20.50	21.00	18.50	16.50		
13.	21.00	20.50	18.50	16.00	.	
14.	21.00	20.50	18.00	15.00	.	
15.	.....	....	....	....	....	....
16.	...	....	....	....		
17.	21.00	18.00	16.00	14.00		
18.	20.50	18.00	16.00	14.00		
19.	20.50	17.50	15.50	13.50		
20.	20.50	16.50	15.50	13.50	....	....
21.	20.50	16.50	15.50	13.50	....	26
22.	.....	.	.	....	56	25⅞
23.	....	...	....	....	....	....
24.	20.50	16.25	15.25	13.25	55¾	....
25	20.50	16.25	15.25	13.25	53⅝	24⅞
26.	20.50	16.25	15.25	13.25	54.37½	25
27.	20.25	16.25	15.25	13.25	55	25
28	20.25	16.00	15.00	12.50	53⅞	23½
29.	.....	....	....	....	53	23⅞
30.	.....	....	....	....	....	....
31.	20.00	15.50	14.50	12.25	53⅞	24½
High	21.50	22.00	20.00	18.00	56	26
Low	18.00	7.75	7.12½	6.00	53	23⅞
Av.	20.38	16.226	14.905	13.053	54.344	24.85

AMERICA'S OPPORTUNITY - THE ZINC SITUATION.

Supplementing its mid-year statistics of spelter production, the United States Geological Survey makes a timely statement, prepared by C. E. Siebenthal, on the general zinc situation, especially as affected by the war in Europe.

Decreased European Production Resulting from War.

By a queer coincidence the great smelting centers of continental Europe are in regions where active fighting is now going on or may be expected in the near future. The zinc smelters of Upper Silesia are in the extreme southeastern portion of Prussia, mostly in the Kattowitz, Beuthen, and Tarnowitz districts, which are adjacent to one another and lie within 5 or 10 miles of the Polish-Russian border and near the corner of Russia, Austria and Germany. The two smelters in Russian Poland are just across the border from the Silesian smelters. They all seem destined soon to be compelled to suspend or decrease operations on account of military activities, and in any event their output certainly can not reach the outside world. The same thing is true of the smelters in Rhenish Prussia and Westphalia, some of which are very near and most of which are within 100 miles of Liege. In Belgium all but three or four of the zinc-smelting plants lie between Verviers and Liege or are strung along the valley of the Meuse between Liege and Namur, and their industrial prospects can well be imagined. The zinc smelters of France lie outside of the territory where active military operations are likely and so will probably suffer only from scarcity of labor as the employees are called to the colors and from derangements of transportation. The same is true of the zinc smelters in England, but those of Austria-Hungary will, of course, be put out of commission. Other small smelters in Europe, Australia, and Japan will possibly not be affected except as transportation is interrupted. From these observations it can be seen that the zinc-smelting industry of Europe will be in a sadly demoralized condition while the war continues and for some time thereafter.

The following table shows the number of smelters in each European country in 1910, the latest year for which information is available, the production for that year, and also for comparison the production for 1913, in short tons:

	1910 Number of plants	1910 Production	1913, production
Germany:			
Upper Silesia	24	154,596	187,522
Northwest Germany	10	96,450	102,350
Belgium	13	190,233	217,928
Great Britain	17	69,531	65,197
France	5	57,895	
Spain	2	7,206	78,289
Holland	1	23,121	26,811
Austria-Hungary	4	14,666	23,928
Norway	1		10,237
Russian Poland	2	9,514	8,389
		623,212	720,651

The output of the smelters in Australia and Japan in 1913 was 11,305 short tons.

If the war continues for one year, the output of these countries for that period would, at a conservative estimate, be only about 250,000 tons—a loss of nearly 500,000 tons for the year. The continental spelter market will also be demoralized, however, so it may be that the reduced production will still be ample. Apparently England's industrial activities after the first readjustments are over may not be seriously restricted.

Increased Mine Production of Zinc in United States.

The following table shows that the production of zinc at the mines is steadily increasing.

	1911	1912	1913
Joplin district	137,633	152,465	146,474
New Jersey	77,445	69,755	84,122
Colorado	47,304	66,111	59,673
Montana	21,905	13,459	44,337
Upper Mississippi Valley	33,939	37,115	32,346
Other States	27,034	39,911	51,430
	345,260	378,816	418,382

The largest increase in sight comes as a

esult of the application of ore flotation concentration in Montana, but an increase due o the same cause is to be looked for in daho and possibly in Utah. In Montana he Butte & Superior mill is now producing t the rate of 50,000 tons of zinc a year, and he new Pilot Butte mill, which has just one into operation, should raise the State utput to 70,000 tons a year, or if, as planed, another unit is added to this mill the State output may rise to 90,000 tons and nore by 1915. In Colorado the new zinc xide plant at Leadville is reported to be urchasing 14 per cent. zinc carbonate ore, s against a minimum of about 20 per cent re purchased by zinc smelters. As the eadville carbonate ore is not amenable to oncentration this means a large increase in he available zinc ore resources of that reion. Another source of zinc which will e made available in the future is zinc-bearng copper ore, the zinc content of which at resent either makes the ore unsalable or, vhen the ore is smelted for the copper, colects as flue and bag-house dusts, for the ecovery of the zinc from which there is t present no suitable process. Much ore f this sort is mined in Shasta County, Cal., nd such zinciferous dusts are accumulating n large quantities at the smelters in that egion.

Increased American Smelter Capacity.

The war but serves to emphasize a condition which already confronted the zinc ndustry of the United States. The zinc-melting capacity of this country has been ncreasing of late years out of all proporion to the consumption, as the following

Zinc-smelting capacity and apparent consumption of spelter in the United States. 1908-1914.

Year	Retorts at close of year. Number	Estimated maximum annual capacity	Production	Apparent consumption.
		Short tons	Short tons	Short tons
1908 ..	93,958	404,960	210,424	214,167
1909 ..	94,328	400,681	255,760	270,730
1910 ..	93,722	398,105	269,184	245,884
1911 ..	85,018	361,327	286,526	280,059
1912 ..	107,948	458,779	338,806	340,341
1913	113,580	483,091	346,676	295,370
1914 ..	130,274	561,165	a175,058	a149,363

a For first six months of year.

The actual gain in capacity is even more than is indicated in the table, for in the earlier years a number of small, antiquated smelters that had been idle for several years were included in estimating the total capacity, whereas in the later years almost all such smelters have been dismantled or abandoned completely, and there have been more new modern additions than ever before in the same time. It is to be borne in mind that a certain portion of the capacity is taken up in the redistillation of zinc drosses, and that some plants do not yield full capacity because they treat lower-grade ores, so that the spelter produced from ore always falls several thousand tons short of the maximum capacity. On the other hand, the new zinc oxide plant at Leadville, Colo., will take a great deal of the low-grade carbonate ore away from the zinc smelters, so that the capacity per retort will be increased because of the higher grade of the remaining supply; and the introduction of ore flotation in the Western States will probably raise the grade of zinc concentrates from that section, likewise increasing the capacity per retort.

Zinc Ore Imports.

With the establishment of peaceful conditions in Mexico, it is to be expected that imports of zinc ore from that country will again reach large proportions, and likewise the imports from Canada may perhaps become larger even than they were in 1909, before the imposition of the tariff. With the closure of the Belgian and other continental markets to the zinc concentrates from Broken Hill, Australia, those concentrates may be partly diverted to the United States. If a sufficient foreign market becomes available, the surplus smelter capacity in the United States might perhaps be employed in smelting foreign zinc ores under bond, and a business might grow up similar to that which exists in lead smelting. This work could be done only at the expense of domestic production of zinc ore, for the present domestic production more than equals the apparent domestic consumption as spelter and as zinc oxide and bids fair to exceed it greatly in a year or two unless consumption is increased by development of export trade in manufactured zinc and galvanized-iron products.

Possible Foreign Zinc Markets for American Zinc.

The opening of the Panama Canal, the necessary establishment of American lines of transportation to South America, Australia, and the Orient, and, in the present crisis, the large dependence of those continents on the United States for their supply of zinc all make for a quick commercial introduction of the products of the United States zinc industry to those continents—an introduction which under other conditions might have taken years.

It is known that large stocks of spelter exist in Europe. The Ironmonger, of London, gives the stocks at the end of March at 73,000 long tons and quotes an estimate of 80,000 long tons for the end of April. At that rate the stocks on hand June 30 must have been considerably over 100,000 short tons, compared to 64,039 short tons in the United States.. The greater part of the European stocks, however, must have been held in the interior and must now be isolated, so that for the term of the war they may be disregarded. After the war what remains of these stocks will become available again and will possibly operate to depress prices, but in the meantime the United States zinc operators will have had the opportunity to dispose of domestic stocks and to become established in the foreign markets.

The following statistics of imports and exports have been taken from the official publications of the countries concerned and are given for 1912 because official figures for 1913 are not available for all the countries. The figures for the "A B C" group of South American States and the partial figures for Venezuela and Uruguay have been kindly furnished by the Pan-American Union. Statistics for the other South American States are not available.

Imports of zinc into various countries in 1912, in short tons.

	Zinc Slabs and Sheets	Galvanized Sheets and Wire	Plain and Galvanized Wire and Sheets
Canada	8,910	79,792	
Mexico	2,686	7,534	
S. America (in part):			
Argentina	3,917	62,360	
Brazil	2,960	25,962	
Chile	665	31,508	18,345
Venezuela ...		864	
Uruguay		8,030	
	7,162	128,723	18,345
From U. S...	475	39,031	11,449
British South Africa	4,930	91,317	
Australia	3,541	135,317	

The foregoing table shows a foreign market for over 72,000 tons of zinc, of which about 30,000 tons consists of spelter in slabs and the remainder of zinc sheets. The American zinc industry should stand an excellent chance to take over the trade in zinc slabs and such part of the trade in zinc sheets as American zinc-rolling mills can furnish. The trade in galvanized-iron sheets is dominated by Great Britain, which controls 87 per cent. of the total export trade in that commodity with the four countries concerned. In addition to over 65,000 tons of spelter smelted in her own plants Great Britain in 1913 imported 150,000 tons presumably used chiefly in making her enormous output of galvanized iron. It would seem that any expansion in Great Britain's foreign trade either in spelter and zinc sheets or in galvanized iron would entail the importation of more spelter from the United States. This country has the opportunity, therefore, to furnish the major part of 222,000 tons of spelter a year as long as the war lasts, together with whatever part of the spelter for the galvanized iron trade of the southern continents and Asia it can acquire. The first demands will naturally come from Great Britain, and according to reports they have already begun. With the end of the war, however, the continental smelters will begin to compete strongly for that trade. The southern continents and Asia are more likely, therefore, to become steady outlets for our zinc products, and by the time the war closes American zinc should have obtained a permanent foothold in these markets, sufficient to take care of the surplus smelter capacity of the United States.

These calculations do not take into account the increased imports of zinc pigments that must come about, thus absorbing some of the domestic surplus zinc resources. Moreover, the United States imports each year from Continental Europe about 2,500 tons of zinc dust. This supply of zinc dust is now cut off, and the dust has already greatly advanced in price. Zinc dust is produced at two American smelters and could easily be produced at others, so that no doubt the better prices will result in the whole demand being supplied from domestic sources. thus absorbing another portion of the surplus zinc ore.

BRANDS OF COPPER.

United States.

LAKE.

	Refined at:	Branded.
Adventure	Hancock, Michigan.	Adv. C. C.
Atlantic	Houghton, Michigan.	A.
Calumet & Hecla	Hubbell, Michigan.	C. & H. M. Co.
Calumet & Hecla	Buffalo, N. Y.	C. & H. M. Co.
Calumet & Hecla	Buffalo, N. Y.	B. L.
Centennial	Hancock, Michigan.	C. C. M. Co.
Copper Range	Houghton, Michigan.	C. R.
Franklin	Hancock, Michigan.	F. M. Co.
Isle Royale	Dollar Bay, Michigan.	I. R. C. Co
Mass.	Hancock, Michigan.	Mass.
Michigan	Houghton, Michigan.	M. C.
Mohawk	Houghton, Michigan.	M. M.
Osceola	Dollar Bay, Michigan.	T. O.
Quincy	Hancock, Michigan.	Q. M. Co.
Tamarack	Dollar Bay, Michigan.	T. O.
Victoria	Hubbell, Michigan.	V. C.
Winona	Hubbell, Michigan.	W. N.
Wolverine	Houghton, Michigan.	W.

ELECTROLYTIC.

	Refined at:	Branded.
American S. & R. Co.	Perth Amboy, N. J.	P. A.
Balbach S. & R. Co.	Newark, N. J.	Cathodes only
Baltimore Copper Works	Baltimore, Md.	B. E. R.
Boston & Montana Co.	Great Falls Mont.	B. & M.
Chicago Copper Ref. Co.	Blue Island, Ill.	C. C. R.
Copper Queen	Laurel Hill L. I.	C * Q
Miami	Laurel Hill L. I.	A. L. S.
Nichols Copper Co.	Laurel Hill L. I.	L. N. S.
Orford Copper Co.	Chrome, N. J.	O. E. C.
Raritan Copper Works	Perth Amboy, N. J.	N. E. C.
U. S. Metals Ref. Co.	Chrome, N. J.	D. R. W.
United Metals Selling Co.	Laurel Hill L. I.	R. M. C.

CASTING.

	Refined at:	Branded.
Balbach S. & R. Co.	Newark, N. J.	N. B. C.
Boston & Montana Co.	Great Falls Mont.	M. A.
Chicago Copper Ref. Co.	Blue Island, Ill.	C. C. R.
Nichols Copper Co.	Laurel Hill L. I.	C. N. C.
Phelps Dodge & Co.	Laurel Hill L. I.	P. D. Co.
U. S. Metals Ref. Co.	Chrome, N. J.	D. S.
Tottenville Copper Co.	Tottenville N. Y.	C. T. C.

TRADE NOTES.

[illegible] Specialty Mfg. Company, Pittsburgh, malleable cast iron and brass works, has been incorporated; Capital $30,000; by E. J. Dugan, Jeanette, Pa.; B. J. Dugan, F. H. Kane, Greensburg, Pa.

Charles H. Burges & Son, Beloit, Wis., have taken over the old brass foundry at Beloit and are equipping it for the production of hot air furnaces, gas water heaters and a line of stoves. The firm has been operating at Janesville, Wis., ten miles north of Beloit, for a year and a half, but has now moved to Beloit to be near the source of its castings supply, the P. F. Mork foundry at Beloit.

The Clark Flexible Coupling Company, 90 West street, New York, has established a plant in Bush Terminal Building, No. 3 Brooklyn. It has been capitalized at $50,000. C. H. Clark president A. H. Goddard, Sec.

The Union Iron Works, Nashville, Tenn., which was recently organized, will establish a stove foundry at Lewisburg, Tenn., to have a capacity of 150 stoves and ranges a day. John G. Cooke is secretary and treasurer.

The Schwartz-Herrmann Steel Works, Inc., 119-121 Nassau street, New York City, has been incorporated by Louis Schwartz, Carl F. Herrmann and others, with a capital stock of $300,000, to manufacture cold drawn tempered steel wires and hardened steel rolled shells for all purposes. It has constructed a complete plant at Floral Park, Somerville, N. J., fully equipped. Manufacturing operations will be started about October 15. Louis Schwartz is president, George H. Winters is works manager and Karl A. Herrmann is secretary and general manager. The company will specialize in razor steel and stamped goods from high grade tempered steels.

The General Bronze Foundry Company, 1869 Hamilton avenue, Cleveland, O., has increased its capital from 10,000 to 25,000. The present directors, formerly of the Aluminum Castings Company, Cleveland, include F. J. Mikat, president, and W. E.

The Whitlock Coil Pipe Company, Hartford, Conn., has opened an office at 431 South Dearborn street, Chicago, under the management of Richard S. Bull. This office will handle the sales of all the products of the company for Chicago territory.

The Warren Stamping Company, Warren, Ohio, has been incorporated with a capital stock of $50,000 to engage in the manufacture of metal stampings. J. G. Gates, Charles Myers, B. C. Baxter, and others, are incorporators.

Turl Iron & Car Company, New Windsor N. Y., car builders, has been incorporated; Capital $100,000; by C. E. Stafford, W. Dyke, Newburgh, N. Y

The Massey-Harris Company, Toronto, will close down its plant for an indefinite period owing to the present unsettled conditions. The closing of the plant will throw about 5,000 men out of employment. Sir Lyman Jones, president of the company, announced that a very large number of European orders were canceled at the first sign of war. The company's London office cabled to stop all shipments, as the Massey-Harris agents at Paris, Moscow, Berlin and other centers could not be reached.

The Ream Metal Bridging Company, Kansas City, Mo., has been incorporated with a capital stock of $30,000 by F. H. Ream, Frank H. Dorris and P. Beiler and will do metal fabrication.

The Ohio Brass Company of Toronto, Canada, has been incorporated with a capital stock of $40,000 to manufacture brass goods, iron, etc.

U. S. Collapsible Steel Container Company, New York, has been incorporated: Capital $250,000; by P. Lenn, C. F. Hubbell F. V. Winters, 539 Union avenue.

White lead works will be established at Dallas, Texas, by the Detroit White Lead Works at Texas. A. D. Joyce is a leading factor in the enterprise.

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THE BUSINESS SITUATION.

After ten weeks of the most stupendous war on record, nothing has yet developed to justify any prediction either as to its developments or end, or what may happen in the meanwhile. The more the situation is examined the more the imagination is staggered.

One Lesson of the War.

Some lessons have however been learned, and the most important and to our mind the only really satisfactory one, is, that it has demonstrated that civilization, and science, and the pursuit of physical comfort and agrandisement, has not turned us into mere material beings, but that mankind is controlled and subject in the last analysis to the spiritual and moral forces that deferentiate us from the brute creation. We were told there could be no such war as we are having, that business and financial and material interests ruled the world, and would not permit the waste of capital and property. But we have learned that material things or those of man's creation are as nothing when moral issues are concerned, and we find hundreds of millions of the inhabitants of the most highly civilized nations of the world, engaged in a contest for what they believe is right, no matter how much they differ in their respective views, and prepared to send willingly to death

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to devotion of their citizens, and to make any sacrifice personal or property, for the right as they see it.

Its Bright Promise for the Future.

As we said before, it is an awful, but still an inspiring spectacle. We see in it, terrible as is the price being paid, the promise of a better world, for everything that makes for the progress and happiness of those to come after and a complete revolution, to put the destinies of Europe in the hands where it should belong, the hands of the people—a victory for democracy over autocracy. The world will be freed from the fear of any like catastrophe for generations to come, and conditions will have been made more favorable for the peaceful pursuits of civilization, than any that have existed in the past.

The Future of Business.

While this contest to a finish is being waged, the future of business is so uncertain, we do not dare to try and predict it, except to say, we believe the struggle will be a long one, and therefore we must be prepared for continued unsettlement and poor business. But there is a view that we can with confidence take, and which is certain to come with the end of the war.

Our Prediction—A Boom.

A boom, by which we understand a period when the business imagination is optimistically excited; a period when the desire to buy far exceeds the desire to sell; when in consequence prices begin to rise, with growing excitement, and each advance only adds fuel to the fire. The pendulum of trade having previously been swung in the direction of extraordinary depression, and held there by some abnormal causes long after it should have normally swung back, is suddenly released, and the swing in the other direction sweeps everything before it.

This we believe will follow the end of the present war. It has followed the end of all modern wars. The immensity of the present war and its sensational results, to our mind, means a likewise sensational reaction.

Reasons Why.

But there are other reasons than the mental. There must be a stupendous movement to replace the destruction caused by the war. Millions of those best able to work for the physical advancement of the world, and who have in the past been idle and supported by the workers as armed European camps, will be thrown into the channels of trade, and join the industrial armies of their respective countries, and there will be plenty for them to do.

The awful destruction of cities, towns and villages that has taken place, and the further destruction that is to follow before the war is ended must be repaired. Belgium, France, Germany, Austria, and Russia will still be among the important countries of the civilized world as they have been in the past, only more so. The ruins will not remain "to point a moral or adorn a tale". The end of the war will see enormous activity and the erection of new cities and towns and buildings on the ruins of the old, and in their reconstruction more iron and steel and metals will be used in the modern structure than was the case in those that they replace.

New Construction the Basis of Business Activity.

Political economists, at whose feet we have been glad to sit, have given it

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as a fundamental, that prosperity and activity in business can be gauged by what they call "construction", be it buildings for home or manufacturing use, machinery and everything else that may be broadly classed under the term construction. The reasons why this is so, are so plain, that they need not be mentioned, except to say new construction represents the need and the power to supply the need.

Confidence and Capital.

The argument so often heard that there will be no capital, we dismiss, as we don't believe it. There will be what is more necessary and powerful than capital, namely, confidence.

There may be less idle capital to put in speculative interests and wild cat schemes, but there will be a flood of hoarded funds to come out with the price that will be offered for it, for employment in activities and construction that are genuine and absolutely real and safe and which cannot be left undone.

The Part the Steel and Metal Trade Will Play, and Why.

But there is another reason for the boom we predict and it especially applies to Iron, Steel and Metals. Where will be the supply to meet the extraordinary demand for this new construction? For months before the war on account of dull trade we have been keeping 25% of our normal production of these raw materials in the ground, and since the war, 50%, which rate or even less may continue while it lasts.

Does anyone suppose our requirements after the war will not be as large as in ordinary good years? Our opinion is it will be larger. How will it be filled? We have been forced to produce only a supply equal to an extremely abnormally small demand.

The demand will come in a flood, and it will take, even with our greatest efforts, a long while before the finished commodity will be produced, in quantity commensurate with the extraordinary demand. The time it will take will be the period of the boom we predict will last.

OUR SECURITIES HELD ABROAD—WHAT DOES IT MEAN?

A canvass is in progress among large corporations with a view to ascertaining the quantity of our securities held abroad. It is greatly to be regretted that it has been left to this late date to find out. It is not to our credit as business men or economists that we do not know, for the information is of the most vital importance. A common estimate is five billion dollars, face value, but some estimates run a billion or two above or below this amount, and even the extreme estimate may be decidedly out.

It is in keeping with American complaisence, until suddenly brought up with a jolt, to look upon the case that the securities are held abroad, and that is all there is to it. If they would only stay there it would be all right.

But there is this important question to be asked: How did those securities get there? They have not been there all the time. There may easily be six billion, and half the amount may have gone out in the past dozen years, which would be $250,000,000 a year. We must have given the securities in payment for something and are we getting proper returns upon the something we received, or have we merely contracted a debt with no expectation of paying? Did we expect to continue sending securities abroad indefinitely? Usually the reply is that we are a new country, and such a procedure is all right; good thing for the country, etc. When, it may be asked, does a country become old enough to stop increasing its indebtedness abroad? We are not really so tremendously new. The world may be 5,000 or 6,000 years old in civilization and millions of years old in its many geological aspects.

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but the age of the present commerce is really only a few decades. How much of the commerce that England, Germany and France have had in the past year is as old, or half as old, as our government? The idea that this is "a new country" is largely a dream. Germany is according to many viewpoints a much newer country. England has recast her commerce over and over again.

To return to how these securities came to be held abroad, there are frequently made analyses of our "unseen trade balance" and the usual style of compilation has been to take the visible balance, in merchandise, gold and silver, apparently favorable to the extent of an average of half a billion dollars a year, and estimate the unseen items, interest and dividends paid abroad, expenditures of American tourists abroad, remittances sent abroad by workmen and others fire insurance premiums paid abroad (neglecting the settlements made, a big item as insuring American property against fire is no very profitable undertaking) freights paid, and so on. These items, frequently forced to balance with our visible favorable balance,-are undoubtedly much in excess of the visible balance, by reason of the flow of securities being unfavorable, possibly, as already suggested, to the extent of a quarter billion dollars a year.

Obviously it would be impossible for the United States to continue indefinitely to send securities abroad. There must be a time limit somewhere. The war has brought the movement up with a rude jolt, and threatens a forced movement in the opposite direction, hence the closing of the New York stock exchange. In the light of the trend that has existed, in a constant outflow of securities, with no one in the United States ever taking the trouble to ascertain how large was the volume of securities, is it not better for us to be brought up thus with a jolt, than not to be brought to face the conditions at all? We ought to have known all along how much of American securities was held abroad, and how the amount varied from year to year. We ought also to be able to answer to ourselves the simple and elementary question, how old must a country be to stop increasing its borrowings from the rest of the world?

ECONOMIC RESOURCES OF THE UNITED STATES.

An inventory of some of the great factors of our national wealth, compiled by the Department of Commerce, demonstrates that the United States is not only practically self-supporting but that it possesses, in many lines, a large surplus available for protection against famine and temporary adversity, or for meeting unusual demands from the outside world. Recent investigations, made as a result of the war in Europe, have brought out the fact that in many cases materials now imported are of a class found in this country, the production of which is in the initial stages.

The following table presents statistics showing a few of the great factors of our national wealth and suggests the foundations upon which a greater American commerce may be built:

	U. S. Millions.	Ap. share of U. S. in world total. %
Area (square miles).	3.6	7
Population	102	6
Corn product (bu.)	2,600	68
Wheat product (bu.)	911	20
Cotton product (bales)	14	61
Sugar product (lbs.)	3,577	10
Tobacco product (lbs.)	791	35
No. of cattle, farms	59	15
Coal product (sh. tons)	534	40
Petroleum product (bbls.)	238	63
Copper product (lbs)	1,243	55
Iron ore (long tons)	57	42
Gold product ($)	93	20
Stock of gold ($)	1,880	22
Value of farm prod. ($)	9,751	No data
Value of manufactures ($)	20,672	No data
Imports, fiscal 1914 ($)	1,894	9
Exports fiscal 1914 ($)	2,365	12
Foreign trade fiscal year 1914 ($)	4,259	10
Domestic trade fiscal year 1914 ($)	40,000	No data
Railways (miles)	*259	38
Aggregate wealth, est. ($)	140,000	No data

* Thousands of miles.

THE EFFECT OF WAR UPON THE UNITED STATES.

Hayden, Stone & Company thus analyze the probable effect of the European war upon the United States:

"Quite evidently, the first effect will be a demand far in excess of anything previously known from the countries at war for the elements that go to make up the necessaries of life; for food and the raw materials that will have to be imported by Europe; for the feeding and clothing of the nations. Secondly, a demand, perhaps somewhat less, but still very great, for materials entering into manufacture—coal, oil, railroad equipment, steel and the like. Thirdly, we shall be called on to make good to the new countries the deficiency caused by the shutting off of European manufacture.

"In one form or another, our ingenuity will be taxed to supply ourselves with the materials for which, hitherto, we have been dependent upon Europe.

"The effect on labor will be marked. At present this is undergoing the first real liquidation it has had to suffer in years. The final upshot will be "more jobs" and less men to fill them—in a word, higher prices for labor.

"Financially, the same trend is in evidence. The acts of the Administration have been in the direction of inflation and this tendency has necessarily, been heightened by the present contingency and the very proper issue, at such a time of emergency currency.

"It must also be remembered that during such a period personal economy, both voluntary and involuntary, becomes most marked. Capital accumulates, not during periods of what we call "good times," but during exactly such a period of readjustment as we are now passing through.

"With international financial relations again normal, as they should be toward the close of the year, all signs point to steadily rising prices; to a great awakening of manufacture in nearly all lines; to increased railroad earnings; in short, to general expansion and inflation.

"We may count for at least a year, and perhaps longer, on a period of almost hectic activity. Under these conditions there will be a certain amount of suffering by persons receiving fixed incomes, but companies owning and manufacturing the goods in demand will pile up earnings rapidly, dividends on such stocks will increase and the prices of most shares will rise.

"The present interregnum in market transactions would seem to be a period of unusual opportunity, but one demanding unusual discrimination."

USES OF ADVERSITY.

It is a fact that adversity whether great or small, frequently develops the best that is in us. One of the best illustrations of this, says the "Pacific Banker," is found in the development of France after the Franco-Prussian war. It is the settling up of the war that usually calls for the most exacting sacrifices. The huge indemnity exacted by Germany following the Franco-Prussian war amounted to $1,000,000,000 and it taxed the ingenuity of the foreign exchange bankers of Europe at the time to handle it.

"This indemnity was embodied in the treaty of peace signed at Frankfort, May 30, 1871, and called for the payment of $100,000,000 thirty days after the restoration of order in Paris, $200,000,000 before December 31, of that year; $100,000,000 by May 1, 1872 and $600,000,000 by March 2, 1874, the last payment carrying with it 5 per cent. interest. This indemnity was to be paid in gold or silver or note of the Bank of England, Prussia, Holland or Belgium or in first-class exchange and that portion of the Eastern Railway of France which ran through Alsace, and belonged to the French government, which was to be accepted for $85,000,000 of the indemnity. As long as this indemnity remained unpaid German troops were to continue to occupy France.

"The burden was an enormous one as France was almost bankrupt. The French peasants and shopkeepers subscribed to public loans in a way that was remarkable. One loan was for $430,000,000 in 1871 and one was for $675,000,000 in 1872. Yet the people of France subscribed these loans many times over and the government was enabled to complete the payments of indemnity in the summer of 1873, thus liberating France from foreign occupation, six months before the maturity of the last instalment.

"This instance of adversity made France the thriftiest nation of Europe. What the outcome of the present war will be in the way of indemnity is beyond the power of the mind to foretell."

BUSINESS TRENDS.

IDLE RAILWAY CARS.

According to the report of the American Railway Association the total of idle railway cars in the country on September 15th was 146,049, a decrease of 27,277 cars compared with the previous statement.

The net surpluses on various dates since January 1st, 1914, are compared in the following table:

Sep. 15	146,049	May 1	228,879
Sep. 1	163,326	Apr. 15	212,869
Aug. 15	172,145	Apr. 1	139,518
Aug. 1	196,665	Mar. 15	$124,518
July 15	226,541	Mar. 1	153,907
July 1	219,545	Feb. 15	197,052
June 15	232,334	Feb. 1	209,678
June 1	242,572	Jan. 15	214,889
May 15	238,642	Jan. 1	188,850

NEW INCORPORATIONS.

As reported by the Journal of Commerce and Commercial Bulletin, papers filed in the principal Eastern States last month for new companies with $1,000,000 capital or over represented $54,800,000. This is an increase of $4,200,000 over the preceding month and $12,150,000 as compared with October a year ago. The grand total of all companies chartered last month with a capital of $100,000 or over, covering all States, including those of the East, amounted to $87,551,400, against $72,014,000 in 1913. However, the total in August this year was $95,785,000.

Following are comparative figures of companies incorporated in Eastern States during the last three years with an authorized capital of $1,000,000 or more.

	1914.	1913.	1912.
Jan. ..	$120,050,000	$332,450,000	$210,520,000
Feb. ..	51,575,000	191,500,000	166,300,000
Mar. ..	57,700,000	166,030,000	159,578,000
April .	136,185,000	198,718,000	281,457,000
May ..	62,700,000	172,200,000	140,284,000
June ..	70,050,000	79,550,000	280,170,000
July ..	68,700,000	83,650,000	253,518,000
Aug. ..	50,600,000	63,500,000	164,500,000
Sept. .	54,800,000	42,750,000	115,050,000
Total	$672,360,000	1,330,348,000	1,771,377,000
Oct. ..	.....	70,856,300	169,495,000
Nov. ..	.....	77,800,000	154,200,000
Dec. ..	.....	55,250,000	200,100,000
		$1,754,300,300	$2,295,172,000

COMMODITY PRICES.

The index number of the London "Economist" for the month of September is 2780, as compared with 2698 for the previous month. The largest advance is shown by heavy goods, which moved up 57 points to 645. Cereals and meat rose 5 points to 646; other food products 36 points to 405. Textiles, on the other hand, receded 14½ points to 611½, and minerals 1½ points to 472½.

Brastreet's index number shows a slight drop from the record high point reached on August 15th last. The index number works out at 9.7572 as of September 1st, the ratio of decrease from the preceding month being nine-tenths of one per cent. Comparison with August 1st last reveals an increase of 12 per cent, while contrast with September 1st, at which time the price curve was working upward, discloses a rise of 7.2 per cent.

The following table gives "Bradstreets" index numbers (the totals of the prices per lb. of ninety-six articles, since Jan. 1, 1909:

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	8.263	9.231	8.836	8.949	9.493	8.885
Feb.	8.302	9.073	8.766	8.958	9.459	8.861
Mar.	8.217	9.111	8.603	8.902	9.405	8.832
Apr.	8.316	9.200	8.522	9.098	9.297	8.756
May	8.302	9.039	8.458	9.270	9.139	8.622
June	8.396	8.911	8.529	9.102	9.072	8.622
July	8.457	8.925	8.594	9.112	8.952	8.656
Aug.	8.504	8.822	8.657	9.159	9.011	8.708
Sep.	8.591	8.952	8.819	9.215	9.100	9.757
Oct.	8.748	8.927	8.806	9.451	9.152	
Nov.	8.964	8.877	8.892	9.478	9.225	
Dec.	9.126	8.784	8.982	9.546	9.229	
Year	8.515	8.989	8.713	9.186	9.211	

OUR FOREIGN TRADE.

August.	1914.	1913.
Exports	110,369,114	187,909,020
Imports	129,767,890	137,651,553
Excess of exports		50,257,467
Excess of imports		19,398,77
Eight months.		
Exports	1,311,351,276	1,515,182,157
Imports	1,270,361,263	1,156,300,228
Excess of exports	40,990,013	358,881,929

BUSINESS TRENDS.

BANK CLEARINGS.

According to Bradstreet's figures, bank clearings for the month of September with one exception are the poorest recorded for any month since June to 1908, the exception being furnished by August in this year. The loss from September last year is 25.5 per cent, and from the same month 1912 it is 23 per cent. The shrinkage in bank clearings for September reflects the absence of operations on the New York Stock Exchange, slowness in industrial lines, idleness among workingmen, tardy collections, high rates for money and uncertainty about the ability of the South to have its heavy cotton crop financed.

Following are the aggregate of clearings monthly at all cities in the United States, compared with the like periods in four preceding years as reported by Bradstreets:

(Six figures omitted)

	1914.	1913.	1912.	1911.	1909.
Jan.	$16,053	$16,092	$14,977	$14,341	$13,905
Feb.	12.736	13,483	12,788	12,136	11,121
Mar.	14,112	13,988	14,330	13,323	12,473
1st qr.	42,901	43,563	42,095	39,810	37,499
April	14,767	14,155	14,855	12,254	13,531
May	13,036	13,982	14,708	13,367	12,868
June	13,812	13,582	13,519	13,691	14,007
2d qr.	41,615	41,719	43,082	39,312	40,406
July	14,361	13,425	13,847	12,925	13,322
Aug.	9,814	12,262	13,097	12,495	13,390
Sep.	9,897	13,297	12,956	12,410	13,405
3d q'r	34,072	38,981	39,900	37,830	40,117
Oct.	.....	15,553	17,002	13,335	15,710
Nov.	.....	13,743	15,228	13,891	14,620
Dec.	.....	14,536	15,217	14,027	15,721
4th q'r	.....	43,832	47,447	41,253	46,032
Total	.....	168,098	172,524	158,195	164,054

BUILDING OPERATIONS.

Bradstreet's figures on building expenditures for the past six months of 1913 and 1914 are given in the following table:

Cities.	1914.	1913.		
Mar. 150	85,610,997	83,388,638	I.	2.6
Apr. 150	83,364,426	97,405,899	D.	14.4
May 146	82,761,751	86,809,963	D.	4.6
June 150	85,532,913	82,999,953	I.	3.0
July 152	82,857,507	78,786,703	I.	5.1
Aug. 143	62,062,204	64,619,339	D.	3.9

COMMERCIAL FAILURES.

There were 1,368 failures reported to Bradstreets Journal for the month of September, that being the largest number reported in any month since January, and a total of 23 per cent larger than in September a year ago. Liabilities, however, were 15 per cent smaller than in July, though nearly double those of September 1913.

For the nine months of the calendar year there were 11,526 failures, a total of 10.8 per cent larger than a year ago, 7.8 per cent greater than in the after panic year 1908 and 2 per cent larger than in the hitherto record year 1896 since which time however, the number of those in business have increased by fully 50 per cent.

In the following table will be found the failures monthly and quarterly for the first eight months of the past two years:

1914.	No. of failures.	Assets.	Liabilities.
January	1,729	$20,421,273	$35,196,682
February	1,206	10,820,258	20,159,736
March	1,260	13,530,577	26,159,420
First quarter	4,195	44,772,108	81,515,838
April	1,221	8,628,578	17,705,784
May	1,181	9,493,349	17,491,672
June	1,151	23,648,220	31,593,019
2nd quarter.	3,553	41,770,147	66,790,475
Six months..	7,748	86,542,255	148,306,313
July	1,219	19,292,236	30,545,567
August	1,191	16,282,462	37,128,027
September ...	1,368	21,027,376	31,771,510
3rd quarter..	3,778	56,602,274	99,445,104
1913—			
January	1,566	8,404,342	15,619,192
February	1,114	16,159,858	29,802,170
March	1,235	8,308,715	19,411,481
First quarter	3,915	32,872,915	64,832,843
April	1,148	12,473,968	20,404,323
May	1,104	7,571,645	14,589,588
June	975	6,505,193	14,017,313
2nd quarter.	3,227	26,553,806	49,011,224
Six months.	7,142	59,426,721	113,844,067
July	1,065	39,174,368	55,253,745
August	1,085	12,685,660	23,625,093
September ...	1,108	7,659,310	16,023,840
3rd quarter..	3,258	60,719,338	94,902,678

IRON AND STEEL IMPORTS AND EXPORTS.

SURPRISING AUGUST MOVEMENT.

Iron and Steel Imports in August Exceed Those of July by 14%, While Exports Decrease only 25%.

The August statistics of iron and steel imports and exports have been awaited with unusual interest, as they would show the first effects of the war. Germany declared "a state of war" July 31st, while England formally declared war August 4th, and the press reports from abroad usually refer to August 5th as the first day of actual combat. Thus practically the full month of August may be taken as a month of war.

The almost universal expectation throughout the iron trade was that the August figures would show an enormous falling off in iron and steel exports, say a decrease of three-fourths, for even to Canada exports were at once curtailed. Before August 15th ferromanganese had sold $140 and $150, and by that date it had begun to decline somewhat. Tin reached its highest point on August 7th, and began to decline on August 12th.

These references indicate clearly the popular view early in August that the import and export movement was very greatly curtailed if not shut off entirely.

Now comes the surprise, the August figures showing that iron and steel imports were 14% greater than in July, and the largest for any month of the year, barring April, while the tonnage exports of iron and steel decreased only 24.6% from July to August.

The August Imports.

As will be seen by the general tabular statement of imports and exports by months, on page 428, the August imports were the largest for any month in the year, barring April. They were slightly above the average for 1912 and considerably below the average for 1913. The important comparison, of course, is with the immediately preceding month, since imports have always advanced and declined in accordance with the general state of activity of the iron and steel trade. The increase from July to August was 14%, and as may be seen from the subjoined table, showing the items in detail, there were increases in scrap, ferrosilicon, pig iron (the term including ferromanganese), alloyed steel, rails, structural [illegible] decreases in unalloyed steel, bar iron, cotton ties and sheets and plates.

Unfortunately it cannot be determined positively whether there was an increase in ferromanganese, as this is included with ordinary pig iron, except in the quarterly statement, appearing much later than the monthly statement. There is reason to suspect that there may have been an increase in pig iron from Newfoundland and a decrease in ferromanganese. The matter is of no particular importance, however, as it is well established that up to this date ferromanganese has been arriving in as large quantities as are needed, particularly for the reduced production of steel now obtaining.

The August Exports.

The subjoined detailed comparison of July and August exports, showing percentages of increase and decrease by items, indicates that there were not many important divergences from the general trend. The total tonnage decreased 24.6% from July to August. Wire rod exports increased largly in percentage, but even the August exports were small. There have been sales altogether of 10,000 or possibly 15,000 tons, to England, but few shipments were made as early as August. There were particularly large decreases in wire and in cut and wire nails and spikes. Trade information is to the effect that since the war began there have been particularly large sales to England, but against this increase is the fact that there had been large exports to South America, and trade with South America has been almost at a standstill since the war started.

Export Prospects.

While the August exports make a remarkable showing, with a decrease of only one-fourth from July, it is to be noted that July was an unusually light month, the smallest since February, 1910. Thus the export trade was generally speaking on a very low basis. The July exports were only 41% of the best rate attained, taking this best rate as the average of the five months April to August inclusive in 1912, that rate

being 280,000 tons a month. It is not to be assumed, of course that had no war started the August exports would have been larger than those of July. The important point is that the restoration of the rate immediately preceding the war would not constitute a good basis upon which to build an increase. The July rate would have to be multiplied by two and one-half before we could begin a new record rate of exporting.

There is no particular reason for expecting September to show heavier exports than August. There may easily be a further decline, as on August 1st there was not a great deal of business on books awaiting shipment, and new bookings in the export trade did not begin to be even fairly important until after the middle of September.

The total value of all iron and steel exports, including that of the tonnage lines just discussed, as well as of machinery, hardware, cutlery, etc., decreased from July to August by 37%, while the weight on the tonnage lines decreased only 25%. There were considerably larger decreases in machinery than in the tonnage lines. The total values were $16,737,552 in July and $10,428,773 in August. The record value for a month was $27,221,210, in March, 1913, and the record rate for a calendar year was $24,500,000 a month, in 1913.

From July to August machinery of various descriptions decreased from $8,060,614 to $4,759,663, or 41%.

Electrical machinery, not included in iron and steel, decreased from $1,415,360 to $1,024,010, or 28%. Agricultural implements, also stated separately from iron and steel, decreased from $1,066,472 to $674,365, or 27%. In these items, as in iron and steel, there may be found to have been further decreases in September.

Notwithstanding the general decrease in imports since the outbreak of the European war, the total value of merchandise entered for warehouse during the month of September amounted to nearly $15,000,000, an unusually high figure for this month.

Customs officials expressed surprise at the largeness of the warehouse figures for last month. The only explanation obtainable was that importers were evidently apprehensive lest they might not be able to get goods from Europe later and that they were bringing in and shipping [illegible] supplies.

IRON AND STEEL EXPORTS

1914—Gross Tons

	July.	August.	Change. %
Scrap	3,642	1,460	— 60.0
Pig iron	9,371	2,918	— 68.6
Billets, sheet bars, etc.	2,955	2,714	— 8.0
Wire rods	317	855	+146.4
Rails	9,550	10,030	+ 5.0
Steel bars	8,164	5,271	— 35.5
Iron bars	556	593	+ 6.7
Structural	14,388	15,851	+ 10.2
Hoops, etc.	846	413	— 51.2
Steel plates	7,172	7,184	— 0.2
Steel sheets	9,663	6,892	— 28.6
Galvanized sheets	3,103	2,179	— 29.9
Iron sheets and plates	823	628	— 23.7
Tin plates	8,213	5,296	— 35.5
Cast pipe and fittings	6,711	6,130	— 8.5
Wrought pipe and fittings	10,621	7,111	— 33.0
Barb wire	7,074	4,753	— 32.8
Other wire	6,142	3,012	— 51.4
Railroad spikes	813	796	— 2.1
Cut nails and spikes	335	132	— 60.6
Wire nails and spikes	2,474	1,133	— 54.4
Tacks, etc.	212	152	— 28.4
Bolts, nuts, rivets, washers	1,280	693	— 65.8
Horse shoes	82	40	— 51.3
Cast radiators	253	363	+ 43.5
Total	114,790	86,599	— 24.6

IRON AND STEEL IMPORTS

1914—Gross Tons.

	July.	August.
Scrap	3,056	3,469
Ferro-silicon	623	1,113
All other pig iron	11,526	12,765
Blooms etc. not alloyed	216	187
Blooms etc. alloyed	3,394	3,459
Wire rods	406	171
Rails	1,236	2,070
Structural	671	1,909
Bar iron	3,001	1,615
Cotton ties	325	197
Sheets and plates	486	271
Tin plates	342	1,542
Total	25,282	28,768

OUR FUTURE TRADE BALANCE.

The trade balance of the United States [illegible] a very interesting subject for speculation. Fortunately there is a fundamental law governing the matter and determining where the final adjustment or liquidation will be made. This law, however, is not universally recognized. From month to month there has been a settlement of the final net balance in gold. This final net balance is of course what is left after allowance has been made for the merchandise balance, the gold and silver balance, and the "invisible balance" involving movement of securities, dividends and interest thereon, money spent abroad by tourists, freights and insurance paid abroad, etc. Frequently the superficial view is taken that the actual liquidation, in the long run, is in gold, but that is not correct. The gold liquidation is only temporary. Our total merchandise movement, imports plus exports, was three billion dollars five years ago and last year it was four billions, while the excess of exports has averaged over half a billion. Left to itself, the merchandise balance could in a very few years reach a sum utterly impossible of payment in gold. The gold movement is really only an intermediate process. Through devious but very sensitive means the supply of gold regulates both imports and exports. When it is large imports are encouraged and exports discouraged, and vice versa. Since the resumption of specie payments in 1879 our net balance in gold movement has amounted to the importation of $159,225,547, but that net gold movement was not the result of a fortuitous merchandise movement. On the contrary, the country was simply strong enough to accumulate that amount of gold from the rest of the world. The real adjustment of commercial movements to the strength the country possessed was not in gold, but in merchandise, securities, etc. Gold, of course, was one item, i. e., a strong country could, at will, afford to import an excess of merchandise, or pay out more dividends than it received, or accumulate gold. The smallness of the total gold imports in over a third of a century shows that the United States has elected to make its settlements in other ways, for in a single year both the net merchandise balance or the net invisible balance have been greater than the gold balance for 34 years.

The final adjustment is made in merchandise or in one or more items in the invisible balance gold imports or exports merely indicating in which direction the adjustment is being forced.

For instance, if there were exceptionally large sales of our securities abroad, there would be a tendency for gold to come in, but only in an amount equal to a small fraction of the sales price of the securities. The influx of the gold would tend to raise our values and make us more prosperous whereby imports would be increased and exports diminished. For another illustration if by superior methods of manufacture, especial abundance of crops, or what not, merchandise exports should greatly increase, there would be some imports of gold but the greater movement would be in our purchase of our securities held abroad. Finally, to get to one of the present possibilities, if by the desire of foreign holders of our securities to sell, rather than from our taking the initiative to buy them, there should be a large movement of securities to this country, there would be an instant tendency for gold to go out of the country, but the full and final adjustment would be chiefly in our imports being decreased and our exports being increased.

To reach some quantitative details as to the visible and invisible balance of trade we take the averages of the past six calendar years and compile the following presentation, covering the aggregate of the six years 1908 to 1913 inclusive:

Merchandise exports	$12,323,000,000
Merchandise imports	9,298,000,000
Favorable merchandise balance	3,025,000,000
Annual average balance	504,000,000
Net gold exports	108,000,000
Annual average	18,000,000
Net silver exports	105,000,000
Annual average	18,000,000
Net favorable balance, gold, silver and merchandise	3,238,000,000
Annual average	540,000,000

While the term "invisible balance" is sometimes somewhat loosely applied, the most practical working definition seems to be that, since the above items are the only

ones subject to precise measurement, the invisible balance is simply the same amount, in the opposite direction. Beyond there being no accurate data, there are no estimates that will bear any critical examination, complete estimates being always empirical, adjusted to force a balance, while partial estimates are usually exaggerations. Thus within the past week one of the reputable financial journals published without hint of criticism an estimate that Americans spend abroad annually $300,000,000, while another estimates the annual payment of interest and dividends to foreign holders of our securities at $300,000,000. These two items alone would make $60,000,000 a year in excess of the amount we have shown above, by government statistics, to be the total invisible balance, leaving nothing whatever for the following items universally recognized as making part of the invisible balance, and against us:

(1) Freights paid to foreign ship owners on imports worth about $1,200,000,000 a year from countries other than Mexico and Canada, this item being in point because our exports are valued at the domestic port and our imports at the foreign port.

(2) Premiums paid to foreign insurance companies.

These are large sums. To offset them in part there might have been a return of our securities in the past six calendar years, but we do not think the net movement has been in that direction, at least to any extent.

Inasmuch as the visible and invisible balances must equal each other in future as they have in the past, we may readily cast up the changes that are likely to occur by reason of the new conditions now thrust upon the world. In this connection the use of the words "favorable" and unfavorable" is not simply awkward, but directly misleading, for the simple reason that if in one respect there is an item which ought by the nomenclature to be called unfavorable, there is instantly produced the necessity for a counterbalancing item, which must be called favorable, hence we should simply be calling names without getting anywhere. We shall therefore use a different nomenclature, the items being merely comparative, with what our experience has been in recent years, or with what it presumably would be if the war had not broken out, and being also very largely tentative:

Credit.

Gold exports increased.

Silver exports increased, if any change in silver.

Merchandise exports increased.

Dividend and interest payments decreased.

Merchandise imports decreased.

Freights paid to foreign ship owners decreased.

Tourist expenditures abroad decreased.

Debit.

Imports of securities increased.

As stated, our division is only tentative. Apparently the credit items would be excessive, unless there should be an enormous return of our securities, so we must conclude either that there will be such an enormous return, greatly decreasing our interest and dividend payments, to our permanent benefit, or some of the items will have to be transferred to the other side, for argument, by gold exports decreasing, which is almost unthinkable, but freights paid to foreign ship owners cannot help decreasing, when we are establishing ships of our own, and tourist expenditures abroad certainly cannot but decrease, at least for a year or so. For a decrease in merchandise exports to be forced, or an increase in imports, could only occur after our becoming decidedly prosperous, for that is the only time at which such changes do occur.

The conclusion seems to us irresistible, therefore, that a very large return of our securities will inevitably be forced, to our lasting benefit, as such return means increased income at home.

In such case the natural and final situation would be that, beyond buying back our own securities we should become investors in foreign securities. We did not include that item in our presentation above, on the debit side, because thus far it is, outside of the case of Mexico, practically non-existent, but there is now every reason to believe it will become an important item in the future.

TOPICAL TALKS ON IRON.

XIX. "Unfinished" Steel.

There is no very precise definition of "unfinished steel" as the term is merely a trade convenience and the context usually indicates precisely what is meant. In Germany the term used is "semi-products" and there the term is closely defined for the reason that the material is one of the groups of syndicated products. The commonest application is to ordinary billets and sheet bars, suggesting the definition that unfinished steel is steel destined for further rolling. According to this idea a billet rolled for forging purposes would be finished rather than unfinished steel, likewise a rod, whether destined for drawing into wire or the manufacture of chain or some other commodity. Ingots are usually spoken of specifically as such rather than as unfinished steel. Ingots are rarely sold in the market, and almost never except when steel is extremely scarce. When all mills are making an effort to produce maximum tonnage it may occur that one mill can produce somewhat more ingots than it can bloom, while another can bloom more ingots than it can produce. Prices must be high to warrant the sale as the ingot must be sold cold and normally ingots are bloomed with their initial heat, after passing through a soaking pit. Slabs, the raw materal of the plate mill, are rarely sold, since plate mills normally have their own steel works.

Billets and sheet bars are ordinary articles of commerce, since there are many plants built to start with the billet or sheet bar as raw material. The time was that purchased billets were used in large quantities by a great many plants, but vertical integration has been so extensive that the large buyers of billets are very few in number. Probably 75 per cent. of all the billets that pass through the market, either in individual sales or upon contracts made for longer or shorter periods are taken by no more than half a dozen concerns, for rolling into bars, rod and skelp. Such bar and rod billets are usually four inches square, while skelp billets are wider and thinner. In the past few years it has not been profitable, on an average, to purchase billets at prices that can be done and convert them into merchant bars at the market price, vertical integration having cut out such business. The economy of a merchant bar mill increases as the range of sizes required to be made decreases, and thus a consumer of merchant bar material needing only a few sizes, but in large tonnages, may be able to install a mill such as will show a profit in converting billets into bars. On the other hand, as a pipe mill requires a great variety of skelp sizes, obtainable from a much smaller number of sizes of billets, it is sometimes found desirable to reinforce a pipe mill with a skelp mill, using purchased billets, instead of either starting with purchased skelp or making the steel also.

The term sheet bar now commonly includes tin plate bars also. Years ago a distinction was made, chiefly because it was thought bars for tin plate rolling needed to be "boshed," by being passed when hot into a trough of water, thus removing scale. Common sheets did not require the same degree of finish as black plates for tinning, besides which fact sheet mill practice involved bringing the sheet bars to a scaling temperature for the first roughing pass, while tin mill practice involved starting with a lower temperature. Nowadays no distinction between tin plate bars and sheet bars is made, though the tin plate bar specifications average thinner than sheet bar specifications. There is no line of demarkation between the two, and no difference of price is involved by different specifications.

Vertical integration is a term which first appeared in recent years, and seems to have been invented to distinguish such combination from what is called horizontal integration, as practiced in the formation of the wire, tin plate, sheet, tube, can and similar consolidations. Vertical integration, however, is by no means as new as horizontal integration. It became much more common with the supplanting of wrought iron by steel. While the size of the individual blast furnace increased year by year until only a few years ago, even the early steel plants involved a much larger tonnage than the average of the old iron mills, and thus there has naturally been more tendency to connect steel works and blast furnaces than iron mills and blast furnaces. There was, however, an influence away from vertical integration in the circumstances surround-

ing the second large replacement of wrought iron by steel, in the nineties, this following long after the first replacement, which occurred in rails along in the seventies. The building of steel mills required a great deal of capital, and the builders avoided in many cases the building of blast furnaces on the one hand or steel finishing capacity on the other. There were blast furnaces in existence, and there were also iron rolling mills, capable of being converted into steel rolling mills with relativtly minor changes. Thus for a time, on account of steel making developing so rapidly, there was much steel produced from purchased pig iron and for sale to rolling mills. As the industry found itself vertical integration proceeded at a rapid pace. In the late nineties billets were a very important market commodity, easily dominating all finished products, even rails, in point of tonnage. To-day billets are a relatively minor market commodity.

The sheet mills originally depended almost exclusively on purchased sheet bars, but to-day the major portion of the sheet output is made from home made steel. In tin plate the vertical integration has not gone so far. One feature which helps to occasion this difference is nearly all tin plate requires the same description of steel, while in sheets there are many specialties, requiring different kinds of steel, and thus there is more advantage to a sheet mill than to a tin mill in having its own steel plant.

ADDITIONAL CONTRABAND OF WAR.

A supplement to the "London Gazette" has been published containing a proclamation specifying certain additional articles which are to be treated as conditional contraband of war. The principal clause in the proclamation reads as follows:

"Now, therefore, We do hereby declare, by and with the advice of Our Privy Council, that during the continuance of War, or until We do give further public notice, the articles enumerated in the schedule hereto will, notwithstanding anything contained in Article 28 of the Declaration of London, be treated as conditional contraband."

Schedule.

Copper, unwrought.
Lead, pig, sheet or pipe.
Ferro-chrome.
Hematite Iron Ore.
Magnetic Iron Ore.
Rubber.

THE ENGLISH MORATORIUM.

London.—It is officially stated that after consultation with the various interests concerned the Government has decided that the time has arrived for bringing the moratorium to an end with as little delay as possible.

There will be no further extension of the moratorium relating to bills of exchange (other than cheques or bills on demand).

There will be no further extension of the general moratorium in so far as it applies to

(a) Debts due to and by traders in respect of their business as such, and

(b) Rent.

As regards other debts to which the general moratorium applies, there will be an extension of one month—that is, from October 4th to November 4th. This extension will be subject to the condition that the interest due under past Proclamations is paid.

On November 4th the general moratorium will come to an end as regards all debts.

In reference to the decision not to extend the moratorium relating to bills of exchange, it is to be borne in mind, as announced in the Press on the 5th inst., that arrangements have already been made by the Government under which the Bank of England will advance to acceptors, where required, the funds necessary to pay all approved pre-moratorium bills at maturity.

Bank of England's Gold Holdings.

The London Statist of September 26th says of the Bank of England gold holdings of nearly $300,000,000: "The bank is now stronger than it has ever been since the Bank Charter Act was passed, 69 years ago. The previous highest was in 1896, the year after the breakdown of the mining boom, the Jameson raid and President Cleveland's Venezuela message. It was then over $10,000,000 less than now. As produce of South African mines is being accumulated locally to credit of the Bank, before the year is out the showing will be remarkable. Nevertheless, the Bank has wisely decided not to put down its rate of discount. If it is able in future to avoid putting up the rate, we shall be very fortunate."

THE COMMERCIAL CLASSIFICATION OF REFINED COPPER.

Lawrence Addicks at September Meeting of American Institute of Metals.

Any adequate classification of a material of commerce such as copper must take into account both the limitations of the metallurgical processes by which the material has been obtained and the needs of the manufacturing processes in which it is to be employed. The metallurgical methods depend in turn upon the nature of the ores or other sources of supply and the manufacturing ones upon the ultimate uses of the finished product.

The world's copper supply comes from four main sources, sulphide ores, oxidized ores, native ores and scrap. Perhaps the chief chemical characteristic of copper is its affinity for sulphur and the largest deposits of copper ores consist of more or less complex sulphides. Near the surface these ores are frequently altered to oxides and carbonates by atmospheric influence and there are also large deposits entirely free from sulphur. Native copper ores where the copper exists as free metal occur in various parts of the world in small quantities but notably in the enormous deposits in the northern peninsula of Michigan where they form the source of the so-called Lake Copper.

Metallurgically there are three typical processes for producing crude or unrefined copper from the ore, based on the general principles of oxidizing sulphides and reducing oxides, (a) roasting, smelting and converting, (b) alternate oxidation and reduction and (c) direct reduction of oxidized ores. (a) which is a strongly oxidizing process by which the great ma jority of the American production is made from sulphide ores, results in the almost complete elimination of impurities which have volatile oxides, including some of the worst enemies of refined copper, such as arsenic. Converter bar nearly always runs 99% copper plus silver and is not likely to carry more than a few hundredths of a per cent of any impurity but nickel. (b) is the old Welsh process, still used to some extent abroad, based upon the reaction between copper oxides and sulphides to eliminate sulphur as sulphur dioxide gas and carried out in a long series of roasts and fusions in reverberatory furnaces. The removal of impurities is here imperfect although they may be to a certain extent segregated in a portion of the product, whence the origin of the "Best Selected" copper of Great Britain. When the ores are wholly oxidized the copper may be recovered by direct reduction in a blast furnace (c) and as this is a strictly reducing process the resulting black copper seldom runs over 96%, due to iron and other impurities reduced.

Except in the case of "Best Selected" and similar English coppers, all of the products from the foregoing processes are given a further treatment or refining, which may be broadly divided into furnace or fire refining and electrolytic refining.

Fire refining is based upon the scorifying effect of cuprous oxide upon base metals contained in a bath of molten copper. The crude copper is melted in a reverberatory furnace and air blown into the bath. Cuprous oxide rapidly forms and dissolves in the bath, the blowing being stopped at or before the saturation point. In this way oxygen is carried to all parts of the molten bath and when there are any metals present which are more easily oxidized than copper cuprous oxide is reduced back to copper and the oxide of the impurity is formed. If this oxide is not soluble in the molten copper it will float to the surface where it may be removed by skimming. As copper stands high among metals in the order of nobility the metallic impurities with the exception of the precious metals may be readily removed in theory. In practice while elimination proceeds rapidly while considerable quantities of impurities are present, the rate diminishes until traces are reached which cannot be slagged off with any reasonable amount of scorifying. Therefore furnace refining is limited in its application to relatively pure crude copper unless a low grade refined copper is contemplated. Less than ten dollars worth of silver and gold per ton will justify electrolytic refining.

Returing to the bath of molten copper which has been skimmed clean, it is necessary to reduce the excess cuprous oxide dissolved, and no better way has yet been

devised than the old Welsh process of covering the bath with a protecting layer of charcoal or low sulphur coke and then forcing the butts of green trees or poles of hardwood beneath the surface by means of suitable tackle. The cuprous oxide is reduced in this way until a normal amount corresponding to an oxygen content of from 0.04 to 0.07% is left when the copper develops its best physical characteristics, the condition of the copper being followed by the appearance of the fracture of small buttons cast in a spoon or "say ladle" which is a sort of ductility test and by the swell or depression of the surface of an ingot as it cools, which indicates the gas content. The copper is then cast by means of one of the several types of ladling machines which have been very successfully developed in recent years.

When the copper is to be electrolytically refined it is first given a rough furnace refining and cast into anode plates, which are then electrolyzed in a strongly acid solution of copper sulphate. The same order of nobility applies, but the great preponderance of copper over the impurities is now an aid as it assists the selective action of the current in depositing only copper at the cathode. Silver and gold are also saved as they are insoluble in the electrolyte chosen and fall to the bottom of the tank as anode mud or slimes to be separately refined and parted.

It is quite evident that copper entering an electrolytic refinery must entirely lose its identity and that the purity of the resulting cathode copper will depend upon the conditions under which electrolysis is carried out rather than upon the momentary quality of the day's anodes. Therefore it is not necessary to consider whether the input be converter bar, black copper or Lake mineral when buying electrolytic, but simply whether the product meets the accepted standards of quality for electrolytic copper.

Electrolytic cathodes should be very pure. They generally run about 99.95% copper, much of the missing 0.05% probably being hydrogen. The metallic impurities generally total about 0.02%. Except for the fact that individual cathodes may vary more or less in impurity content they are ideal material for brass making. Copper producers, however, have never encouraged the sale of cathodes, as there is apt to be some shrinkage in weight during shipment owing to the comparative ease with which nodules or small pieces can be detached either accidentally or intentionally. Also cathode shipments unbalance the work in a refinery in proportion to their magnitude, as melting cathodes into market shapes is a distinct part of the process.

This melting is done in a reverberatory furnace and originally was an exact duplication of the fire refining already described. As the cathode copper is already pure, a simple melting is all that should be required but molten copper is so susceptible to contamination that until recently the gases from combustion, iron in the rabbles, etc., were absorbed to a sufficient extent to require actual refining. At the present time large quantities of cathodes are being added to the molten charge during ladling and earlier, basic furnaces are being substituted for acid ones, thereby suppressing slag formation, and attention is being paid to keeping coal ashes from blowing over from the firebox, so that a true melting without refining is being approached. It is well known that cathode copper when drawn into wire will show an electrical conductivity some two per cent higher than the same copper after a subsequent fire refining. This is probably due partly to the fact that chemical impurities in the cathode are chiefly present as a mechanical mixture due to adherence of anode slimes which are dissolved in the copper when melted, making a high resistance matrix around the copper crystals when the metal is cast and cooled; and partly to contamination during melting. It seems probable that the conductivity of perfectly pure soft copper is in the neighborhood of 103% of the Matthiessen standard in common use.

Lake ores are low grade native copper deposits, which are mechanically concentrated to an 85% mineral. This is melted and after skimming off the slag formed by the remaining gangue, is given a fire refining as previously described. The Michigan mines are among the oldest, largest and deepest in the world. Thirty years ago Lake copper was the standard of the industry. The surface ores were remarkably free from objectionable impurities and copper of the highest conductivity was readily produced. The first electrolytic copper to come on the market was of irregular character due to lack of familiarity with the principles of

this new process and for a considerable time Lake copper was deservedly considered superior. With increasing depth, however, many of the mines showed increasing quantities of arsenic and indeed all Lake copper may be considered as arsenical copper, although in some brands the arsenic is very low. The result was that electrolytic copper began to take precedence for electrical work, as its conductivity could be absolutely depended upon, and Lake began to fall back upon superior "working" qualities, a term which defied exact definition. It is now generally admitted that high conductivity Lake copper cannot be distinguished from electrolytic copper, while low conductivity Lake is really an alloy of copper with arsenic which has certain desirable properties for special uses. Nearly all the elements which markedly depress the conductivity when alloyed with copper are helpful in developing desirable mechanical properties, for example, phosphorus, aluminum, and silica. High arsenical copper running about 0.4% arsenic has now a special market for making firebox plates in Germany, and uses are beginning to be found for the intermediate grades. One of the large Lake companies maintains its own electrolytic refinery, and in this way recovers a small amount of silver and eliminates the arsenic, the product still being classed on the market as Lake, although it is equally electrolytic. The old prejudice in favor of Lake on general principles has now largely died out but only with the contemporaneous retirement of the older generation of wire mill managers. Lake copper should be clearly graded by arsenic contents into a series of alloy coppers, the class at one end competing with electrolytic on its own ground, and the other classes sold in competition with arsenical copper from other sources, a field which has only lately been properly appreciated.

The last class of copper produced which we have to consider is that generally known as casting copper, a very loose term covering a multitude of sins. There are three main sources of casting copper (a) from converter bar or black copper from smelters whose ore supply carries quantities of silver and gold insufficient to pay for refining (b) by-product copper not up to standard electrolytic grade occassionally produced by refineries [illegible] (c) copper reclaimed from all sorts of new and old work. The first is often of excellent quality, one well known brand being maintained at 99.80% Cu or better, and is generally comparable with English Best Selected. The second class is generally an arsenical copper and is not now often seen as the refineries are nowadays able to eliminate arsenic from the process in other ways. The third class is generally foul, but often suitable for common castings as the impurities help the founding, pure copper being a difficult metal to handle in a foundry. The copper contents may run below 99% Cu., however.

Specifications for Lake and electrolytic copper may be readily drawn and after a thorough investigation the American Society for Testing Materials has issued a set which should be generally accepted by engineers, as it has already been by the large refineries and wire mills. Casting copper presents a specification problem hopeless of solution at the present time, as there are well known brands in the market with the widest imaginable range of impurities, all of which are being kept consistently within a certain range of quality for each individual brand and which find a market for various special uses. About the one thing that can be said of casting copper is that neither a conductivity nor a ductility test is applicable in the nature of things.

Turning now to the uses for copper, they may be broadly classified as follows: (a) wire and other shapes for electrical purposes; (b) sheets and plates for non-electrical uses; (c) copper castings, generally for electrical use; (d) in alloys such as brass and bronze; (e) special purposes for which small quantities of alloyed impurities may be advantageous.

Electrical use immediately imposes a conductivity requirement which rules out everything but electrolytic and high conductivity Lake, which, as before stated, are practically identical coppers. Most of the electrolytic refineries figure on averageing about 100.0% soft in the electrical conductivity of their outputs. Occasional lots may reach nearly to 101.0% and some may approach 99.0%, while 98.5% is the usual rejection limit, but it is very unusual for a refinery to ship anything for electrical use which is below 99.0%. No distinction is made between cakes, wirebars and ingots, more than one shape often being cast from a single furnace charge, so that there is

nothing to be gained by ordering wirebars and then cutting them up, when ingots are desired. Unless electrical use is specified it is customary to allow an additional leeway for one per cent in conductivity to the refiner, but he rarely needs this and prefers to maintain the higher standard, as copper is often resold several times before it comes into the hands of the actual user. As copper from a single furnace charge will carry practically uniform chemical impurities, shipments on an individual order should be filled from as few furnace charges as possible and all wire bars and cakes should be stamped with marks identifying these charges. The refiner will always consider complaints on a furnace charge basis if they are of a chemical nature. If they are indefinite he will generally investigate what other customers received copper from the charge complained of, and in the absence of other complaints will demand a bill of particulars before giving the matter serious consideration. The conductivity of a furnace charge is generally determined at the refinery several times while the charge is being cast and this precaution together with the ample margin above rejection limits which is maintained, have practically abolished conductivity complaints.

When copper is not to be put to an electrical use conductivity is of no special value except as a certificate of the absence of more than a trace of a certain class of impurities. The refiner divides impurities into three classes; those that depress conductivity, such as arsenic and antimony; those that impair ductility, such as lead, tellurium and bismuth; and those which are of value if reclaimed, such as silver, gold, platinum and palladium. The elements which depress conductivity are kept within bounds by the conductivity test regularly made. Those which are of value if reclaimed will never reach quantities sufficient to affect the physical properties of the copper as it would pay to re-refine any such copper. The remaining class comprising elements which impair ductility is more difficult to deal with. We know that bismuth, lead, tellurium and probably selenium make copper very brittle even when present in very small quantities. We do not know, however, how to write a specification limiting these impurities as the presence of small amounts of other impurities will neutralize their bad effects. We also know that amounts of lead up to 0.005% have no perceptible effect in mill practice or in alloys. Double this amount shows mild effects. Lead is about the only one of the group ever met with in sufficient quantity to be of interest. As these elements are practically insoluble in copper their effect on the conductivity is directly proportional to the amount present and consequently negligible.

It must be understood that an element like lead is always present in small amounts in refined copper and the mere fact of its presence as shown by a delicate qualitative test is no basis for complaint. It should be further borne in mind that the determination of the small quantities of impurities in refined copper quantitatively can only be done with even reasonable accuracy by a chemist who has had large experience in this particular work. A representative analysis of refined electrolytic copper would be somewhat as follows:

Conductivity (annealed)	100.0 %
Copper	99.93000%
Silver	0.00100%
Gold	0.00001%
Sulphur	0.00300%
Oxygen	0.04000%
Iron	0.00350%
Nickel	0.00400%
Arsenic	0.00200%
Antimony	0.00300%
Aluminum	0.00160%
Phosphorus	Trace
Lead	0.00200%
Bismuth	Trace
Selenium	0.00050%
Telurium	0.00050%
	99.99051%

It will be seen that oxygen is the chief impurity. It has been pretty conclusively shown that too much oxygen makes the copper harder and affects the annealing temperature, the tensile strength of wire and the number of breaks in a wire machine. This may be due to some surface effect as the "set" surface of a wire bar has a greater oxygen content than the body of the bar and as the oxygen content increases it is possible that this oxidized layer becomes thicker. Another point about high oxygen is that it corresponds to low copper contents and to that extent is sold as copper. In brass making the "set" or

"catch" of the ingot is of no consequence except when the most careful work is done when melting in the foundry to avoid further absorption of oxygen. It is obviously useless to impose rigid conditions upon the refiner if the same conditions are not observed in the remelting and it is only at the largest and best equipped brass foundries that such conditions are even approached. When zinc is introduced into molten copper it acts as a deoxidizing agent forming zinc oxide. If the copper is kept at very high pitch this source of zinc loss and dirty brass can be greatly diminished and this fact has resulted in a demand for high copper contents in ingots.

It has therefore become a general custom to specify that the copper contents of refined copper shall not be less than 99.88% which really means 99.90% allowing 0.02% for assay variations. As this is a rejection point the actual average content is expected to be between 99.92 and 99.94%

When we come to casting copper a far greater leeway must be allowed as already pointed out. In fact, except in considering the price charged for the material, copper contents has but little to do with casting copper. It is best to buy this material on the basis of known brands after finding what brands yield good results in the particular class of work and then insist upon uniform deliveries, judging the material by chemical analysis of the chief impurities.

The physical defects of refined copper are many. Practically all cast copper is porus, doubtless due to the discharge of dissolved gases as the copper cools.

This is analogous to the "piping" of steel ingots but is not so pronounced because copper is cast in a shallow mould instead of on end. These microscopic bubbles are doubtless the cause of roughness in wire. Then there is a class of defects inseparable from ladling, consisting of cold sets and splashes where the copper has run up on the mould and chilled before the main body of metal reaches that point. Then there is porosity or sponginess of the surface due to the mould being either too hot or too cold. Another defect is raised edges on the set surface, generally due to slightly lowered pitch corresponding to excessive oxygen content of the copper. Should the pitch drop still lower "nigger heads" or little black spots will appear. These are the outlets of gas cavities extending some distance into the copper. On the other hand should the oxygen content be too low the surface of the bar rises and finally breaks open or "spews," an even worse condition.

Many of these defects are always present in more or less degree. Mechanically ladled copper can never be perfect Specifications require that copper shall be free from mechanical defects, but a reasonable attitude regarding minor troubles on individual pieces is generally necessary to the peace of mind of a buyer. On the other hand a refinery occasionally becomes careless in such matters and will send out some surprisingly bad work, so that careful systematic inspection combined with an attitude of friendly criticism is the best way for a copper producer and a copper user to live together.

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IRON AND STEEL.

THE SITUATION.

The second month of the European war has brought some disillusionments from views formed in the first month, but has disclosed nothing as to the final trend the war will produce. We are still waiting for the first effects of the war to run their course.

Among the views from which there has been disillusionment are that the war would make any raw materials so scarce as to hamper the production of iron and steel, that a fresh demand for finished goods would spring up from neutral markets, and that success in arranging our financial affairs so as to avoid a panic or general financial distress would leave our domestic commerce free to pursue its usual way.

Instead, we find ferromanganese easily obtainable at less than two prices, instead of the four prices paid for a few days in August, no formidable inconvenience in the matter of magnesite, pig tin a trifle lower than before the war, less than half the price reached in the August scare, and spelter below the average for one, two or any number of months before the war and more than a cent below prices asked, though paid only on the most limited tonnages, at the height of the August scare. We find further that instead of a fresh demand for steel products arising from neutral markets we have scarcely restored the relatively small volume of exports that was moving before the war and have not filled all the business that was on books at the inception of the war. Finally we find that while financial panic has been averted and the financial position is relatively sound, the protection has been secured at the cost of almost throttling our domestic trade.

At the beginning of October the steel mills are running at an average rate not exceeding 50% of capacity. New buying is almost absent and specifications against old contracts are at a very restricted rate. Steel prices are at an average level only 50 or 75 cents a ton above that of just before the war. Pig iron is not only cheaper, on an average, than just before the war, but is at a level practically coincident with the low point at the close of 1911 and therefore is as low as at any time since 1904.

Trends in the Trade.

In strictly new buying there is no trend, as this has been at an extremely low rate for several weeks. In specifying against contracts there is no definite trend to be observed at the moment, since the end of September brought the expiration of a number of contracts, and some little extra specifying occurred because the buyers did not have as low priced contracts for fourth quarter. September specifications represented perhaps one-third the productive capacity and the trend would be downward for October, except that perhaps September felt some effect from the extra buying that occurred in August when some buyers had the view that steel might become scarce on account of the war.

The trend in production is distinctly downward. September opened with the steel mills running at an average of close to 60% of capacity, and closed with the mills running barely 50%. Nothing has occurred to arrest this downward trend, while the bookings in September were less than the shipments, clearly indicating still lighter production in the future, and the rate of production may easily be down to 40% by the end of October.

Pig iron and steel prices tend towards weakness where they show any trend at all, but in general the markets are stagnant and prices are not seriously tested. There is little temptation to mills and furnaces to cut prices. Many producers hold to the view that cutting prices would not produce any business, while the extremely light operations promised will operate to advance production costs, so that reducing prices would be particularly hazardous at this time. Occasionally there is a firming up, more in desperation than anything else, as in the case of the sheet mills, which have fully established a minimum price of 2.00c and 3.00c respectively on black and galvanized sheets. On the whole prices show no definite trend except such as is produced by accidents here and there.

Export Trade.

In the last full week in September the United States Steel Corporation entered 48,000 tons of export business, a considerable part of this being orders that had been hanging fire, awaiting the settlement of final details. Structurally the booking-

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would indicate a rate of 2,500,000 tons a year, but practically it represented less, on account of the accumulation of negotiations involved. In general there is warrant for a statement that the corporations export business has now been restored to the rate prevailing just before the war, but the July statistics show that the country's total iron and steel exports were only 115,000 tons, against an average rate during the first six months of the year of 140,000 tons a month, and a rate of 245,000 tons a month during the banner export year, 1912. Thus the restoration is the rate just before the war does not mean much. It is the first step. The next is to increase our exports to the record rate of 1912, the third step, which may not be taken for many months, being to export at a new record rate.

Relatively little business in unfinished steel has been done with England. The early inquiries were regarded by the prospective buyers as entirely out of the question, but successive reductions seem to have just about kept pace with developments in England, showing that the requirements are going down. Apparently England's trade in finished goods is reduced sufficiently to make up for the loss of the German and Belgian unfinished steel that was being imported at the rate of about half a million tons a year.

The Canadian market has given the best account of itself, but only relatively, as in the early weeks of the war Canadian business was absolutely flat. Now Canadian demand is approaching normal. South America is no buyer, and is not likely to become an important buyer for many

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered).

	Bessemer, Valley	Basic, Valley	No.2 fdy, Phila.	Basic Phila.	No. 2X fdy, Buffalo.	No. 2 fdy — Cleveland.	No. 2 fdy — Chicago.	No. 2 fdy — Birmingham.	Ferro-manganese.*	Furnace coke†
1913—										
Jan. ..	17.25	16.50	17.50	18.00	18.49	17.50	17.75	18.48	13.72	65.00	3.85
Feb. .	17.25	16.43	17.12	17.75	18.23	17.22	17.44	17.87	13.46	65.00	2.60
Mar. .	17.20	16.14	16.60	17.50	17.81	16.79	16.75	17.75	13.04	64.00	2.47
April .	17.00	15.87	15.66	17.00	17.49	15.96	15.41	17.60	12.60	61.00	2.20
May ..	17.00	15.25	14.73	16.50	16.77	15.58	15.56	16.67	11.74	61.00	2.15
June ..	16.34	14.50	14.18	16.50	16.26	14.43	14.95	16.24	10.89	61.00	2.20
July .	15.86	14.40	13.88	15.90	15.66	14.01	14.68	15.38	10.50	59.00	2.50
Aug. .	15.63	14.09	13.94	15.25	15.56	14.20	14.50	15.44	10.85	56.70	2.50
Sept.	15.75	14.00	14.00	15.25	15.97	14.25	14.55	15.50	11.20	54.50	2.37
Oct. .	15.67	13.97	13.83	15.25	15.94	14.25	14.73	15.50	11.48	50.28	2.10
Nov.	15.23	13.28	13.57	15.13	15.61	13.96	14.35	15.43	10.80	50.00	1.88
Dec. .	14.95	12.83	13.38	14.75	14.98	13.32	13.76	14.83	10.50	47.00	1.77
[illegible]	16.26	14.77	14.87	16.27	16.56	15.12	15.37	16.39	11.73	57.87	2.38
1914—											
Jan. ..	14.06	12.51	13.00	14.25	14.69	12.76	13.30	14.35	10.63	43.42	1.88
Feb. .	14.13	13.21	13.21	14.00	14.88	13.02	13.56	14.46	10.52	38.33	1.90
Mar. ..	14.20	13.05	13.25	14.10	15.00	13.38	13.75	14.75	10.75	38.40	1.92
April .	14.00	13.00	13.25	14.25	15.00	13.75	14.21	14.75	10.52	38.00	1.90
May ..	14.00	13.00	13.17	14.10	14.91	13.57	14.25	14.68	10.50	38.00	1.83
June ..	14.00	13.00	13.00	14.00	14.51	13.01	14.35	14.21	10.29	38.00	1.80
July ..	14.00	13.00	13.00	14.00	14.40	13.00	13.81	14.38	10.06	37.50	1.75
[illegible]	14.00	13.00	13.00	14.00	14.28	13.18	13.75	14.44	10.00	111.00†	1.74
Sept. .	14.00	13.00	13.00	14.00	14.68	13.25	13.75	13.85	10.00	83.00	1.70

* Contract price, f.o.b. Baltimore; †Prompt, f.o.b. Connellsville ovens.

† Spot shipment; no contract market.

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months, having simply no purchasing power. Before important exports go to South America we must arrange to buy South American goods, or finance South American projects. With Africa, the far east and some European points export demand has been developing, but in a very moderate way.

The Future.

Domestic buying for ordinary current consumptive requirements presumably reached its minimum before the close of September. Money, an important if not the most important factor, can hardly grow tighter, and may loosen up perceptibly. During the stringency stocks in buyers' hands have been reduced, and while they are not at all likely to be increased for many weeks, the inability to reduce them further may make a change for the better in this class of buying.

Against these very moderate prospects as to buying for ordinary current consumption there is the very important fact that the war found many construction projects in process, all to be finished sooner or later, and no new projects are now being launched. As one big job after another is finished there is so much less steel to be made and delivered. How far the gradual cessation of this form of consumption will operate to restrict mill activity remains to be seen, but there is every prospect that before conditions improve the mills will be operating at a smaller percentage of existing capacity than has ever obtained in the history of the steel industry.

In many quarters, perhaps in most quarters, there is an expectation that eventually industry will experience one of the greatest booms in history. At the moment there is no need to discuss such prospects. In the

FINISHED STEEL PRICES.

(Averaged from daily quotations, f.o.b. Pittsburgh.)

	Shapes.	Plates.	Bars.	Pipe.	Wire.	Wire Nails.	Cut Nails.	Sheets Black.	Sheets Galv.	Tin plate.	Composite Finished steel.
1913—											
January	1.50	1.50	1.40	80	1.55	1.75	1.70	2.72	3.47	3.60	1.7737
February ..	1.45	1.45	1.40	80	1.55	1.75	1.70	2.35	3.50	3.60	1.7625
March	1.45	1.45	1.40	80	1.56	1.76	1.70	2.35	3.50	3.60	1.7646
April	1.45	1.45	1.40	79¾	1.60	1.80	1.70	2.35	3.45	3.60	1.7743
May	1.45	1.45	1.40	79¼	1.60	1.80	1.70	2.35	3.40	3.60	1.7786
June	1.45	1.45	1.40	79	1.55	1.75	1.70	2.29	3.38	3.60	1.7719
July	1.45	1.45	1.40	79	1.50	1.70	1.70	2.25	3.31	3.60	1.7600
August	1.45	1.44	1.40	79¾	1.47	1.67	1.60	2.20	3.25	3.60	1.7400
September .	1.40	1.40	1.40	80	1.43	1.63	1.60	2.12	3.17	3.60	1.7093
October ...	1.39	1.36	1.39	80	1.40	1.60	1.60	2.04	3.08	3.50	1.6779
November .	1.34	1.29	1.30	80	1.40	1.60	1.60	1.98	2.98	3.40	1.6203
December ..	1.24	1.21	1.22	80	1.35	1.55	1.60	1.90	2.90	3.40	1.5558
Year	1.42	1.41	1.38	79¾	1.50	1.70	1.66	2.21	3.28	3.56	1.7241
1914—											
January	1.20	1.20	1.20	80	1.33	1.53	1.60	1.86	2.86	3.40	1.5394
February ..	1.25	1.21	1.22	79½	1.40	1.60	1.60	1.95	2.95	3.40	1.5794
March	1.21	1.18	1.20	79½	1.40	1.60	1.60	1.95	2.95	3.40	1.5638
April	1.18	1.15	1.15	79¾	1.40	1.60	1.60	1.90	2.89	3.39	1.5337
May	1.15	1.14	1.14	80	1.38	1.58	1.60	1.85	2.79	3.30	1.5078
June	1.12	1.10	1.12	80	1.30	1.50	1.58	1.81	2.75	3.30	1.4750
July	1.12	1.11	1.12	80	1.32	1.52	1.55	1.80	2.75	3.30	1.4805
August	1.18	1.18	1.18	80	1.37	1.57	1.55	1.88	2.87	3.50	1.5421
September..	1.20	1.19	1.19	80	1.40	1.60	1.55	1.98	2.97	3.48	1.5630

IRON AND STEEL.

case of production at least we are still on the down grade and ample time will doubtless be afforded to recognize the impending boom when it is still in the future, but much nearer at hand than it can be considered at this moment.

Pig Iron.

There has been no movement in pig iron worthy of being recorded. In all districts the market has been absolutely flat. Whether prices have failed to decline because there has been no pressure of interesting enquiry or because, being already at an extremely low level, there is no room for further declines, can hardly be judged at the moment. During September the Philadelphia market advanced 25 cents and then lost the advance, but the month closed with the 20-cent advance of August retained. Chicago lost 50 cents, and other markets showed no change. Southern iron remained at $10, Birmingham, but by reason of reduced freight southern iron at Cincinnati dropped from $13.25 to $12.90. By this adventitious circumstance our composite pig iron dropped seven cents a ton, to $13.375 on October 1. The lowest level of the composite between 1904 and that date was

U. S. STEEL CORPORATION'S OPERATIONS.

EARNINGS AND UNFILLED ORDERS.

Earnings by Quarters.

Net earnings by quarters since 1908:

Quarter.	1914.	1913.	1912.
1st	$17,994,381	$34,426,801	$17,826,973
2nd	20,457,596	41,210,813	25,102,265
3rd	.....	38,450,400	30,063,512
4th	.....	23,036,349	35,185,557
Year	.....	137,133,363	108,178,307

	1911.	1910.	1909.
1st	$23,519,203	$37,616,876	$22,921,268
2nd	28,108,520	40,170,960	29,340,491
3rd	29,522,725	37,365,187	38,246,907
4th	23,155,018	25,901,730	40,982,746
Year	104,305,466	141,054,753	131,491,412

Unfilled Orders.

(At end of the Quarter):

	First.	Second.	Third	Fourth.
1903	5,410,719	4,666,578	3,278,742	3,215,123
1904	4,136,961	3,192,277	3,027,436	4,696,203
1905	5,579,560	4,829,655	5,865,377	7,605,086
1906	7,018,712	6,809,584	7,936,884	8,489,718
1907	8,043,858	7,603,878	6,425,008	4,642,553
1908	3,765,343	3,313,876	3,421,977	3,603,527
1909	3,542,590	4,057,939	4,796,833	5,927,031
1910	5,402,514	4,257,794	3,158,106	2,674,757
1911	3,447,301	3,361,058	3,611,317	5,084,761
1912	5,304,841	5,807,346	6,551,507	7,932,164
1913	7,468,956	5,807,317	5,003,785	4,282,108
1914	[illegible]	[illegible]	[illegible]	[illegible]

BOOKINGS AND SHIPMENTS.

In this table, first two columns, percentages of bookings and shipments to total capacity, are our estimates, while last column is derived from official reports of "unfilled tonnage" while third percentage column is directly computed from this tonnage column.

1912—	Shipments. %	Bookings. %	Difference. %	Difference. Tons.
June	94	99	— 5	+ 56,363
July	82	95	+13	+149,733
August	92	110	+18	+206,296
September	98	135	+37	+388,132
October	98	187	+89	+1,042,874
November	96	120	+24	+258,512
December	97	104	— 7	+ 79,281
January 1913	98	89	— 9	—104,796
February	98	82	—16	—170,654
March	93	77	—16	—187,758
April	93	51	—42	—490,194
May	95	41	—54	—654,440
June	93	47	—46	—517,005
July	90	55	—35	—407,961
August	90	75	—15	—175,888
September	82	74	—18	—219,683
October	87	74	—40	—490,018
November	70	59	—11	—117,420
December	50	40	—10	—114,239
January 1914	55	83	+28	+331,572
February	67	105	+38	+412,764
March	72	40	—32	—372,615
April	67	35	—32	—376,757
May	62	37	—25	—278,908
June	63	66	+ 3	+ 34,697
July	64	75	+11	+125,732
August	67	72	— 5	+ 54,742

IRON AND STEEL.

$13.395, in the early days of January, 1912, but the making of this new low record was due simply to the change in the freight rate from Birmingham to Cincinnati. Below are indicated the changes in the composite since the beginning of last year:

	On first of month.	Change during month.
January (1913)	$17.480	—17.5c
February	17.275	—33.0
March	16.945	—32.0
April	16.621	—61.0
May	16.015	—76.5
June	15.250	—55.0
July	14.700	—25.0
August	14.450	+17.5
September	14.625	+15.0
October	14.775	—20.0
November	14.525	—47.5
December	14.050	—50.5
January (1914)	13.545	—12.0
February	13.425	+45.0
March	13.875	— 2.5
April	13.85	0.0
May	13.85	—17.5
June	13.675	—12.5
July	13.60	—10.0
August	13.50	— 0.5
September	13.495	—12.0
October	13.375	

The rate of production by the merchant blast furnaces has been decreasing and is now the lowest in many years, while prospects are that merchant furnaces will continue to go out at intervals during the next few weeks.

Unfinished Steel.

Throughout September the large steel mills continued to insist that "the market" was $21 on billets and $22 on sheet bars, at maker's mill, Pittsburgh or Youngstown, in accordance with the advances made in August totaling $2 a ton from the recent minimum. As a matter of fact scarcely any steel was sold at these or any other prices. In some exceptional instances sheet bars seem to have been sold at $22. The market as a whole, however, was entirely fictitious, several offerings by smaller mills at cut prices failing to result in business. At the close of the month a round tonnage of sheet bars for fourth quarter was offered by a minor mill, without finding takers at $20. Subject to the development of a real market we quote nominally $20 for billets and $21 for sheet bars.

Finished Steel.

Prices on bars and plates definitely receded late in September, to a level of 1.15c, and shapes appeared by no means established at 1.20c, though not openly quoted at less. Sheets stiffened up to 2.00c for black and 3.00c for galvanized, but chiefly as asking prices, there being scarcely any buying. The whole finished steel market is absolutely stagnant, prices being under no particular pressure and not being really tested.

Ferromanganese.

The English producers of ferromanganese first resumed shipments on old contracts and then began offering fresh material at prices declining until a level of $68, Baltimore, was reached October 1st, comparing with $38 before the war and $150 paid for spot lots at the height of the scare.

BRITISH IRON AND STEEL EXPORTS

According to the Board of Trade returns, in tons of 2,240 pounds:

	Pig iron.	Rails.	Tin plates.	Total*
1912—				
Nov. ..	88,006	30,996	45,534	428,855
Dec. ..	82,935	29,799	35,920	391,128
Year	1,262,783	407,175	481,123	4,933,112
1913—				
Jan. ..	101,964	35,523	46,260	448,186
Feb. ..	63,961	41,849	33,374	363,551
Mar. ..	90,012	34,064	41,579	398,621
April ..	101,413	46,081	41,882	470,040
May ..	97,093	45,025	50,441	463,197
June ..	91,913	52,073	41,483	427,148
July ..	96,135	53,570	43,166	455,626
Aug. ..	101,843	44,637	36,274	396,656
Sept. ..	106,525	26,283	36,572	394,849
Oct. ..	99,588	40,625	40,733	435,534
Nov. ..	100,235	40,140	44,317	430,113
Dec. ..	74,133	40,744	38,840	373,354
Year	1,124.815	500,614	494,921	5,050,919
1914—				
Jan. ..	82,182	57,904	43,164	467,449
Feb. ..	59,832	35,484	41,744	353,861
Mar. ..	92,364	40,207	40,863	414,902
April ..	93,396	30,682	44,296	394,535
May ..	95,037	56,881	48,628	437,648
June ..	88,569	39,700	36,565	356,066
July ..	74,617	43,133	47,237	385,301
Aug. ..	28,342	22,763	21,414	211,603
8 mos..	614,339	326,754	323,911	3,031,367

* Includes scrap pig iron rolled iron and steel cast, and wrought iron manufactures, bolts, nuts, etc., but not finished machinery, boilers, tools, etc.

PRICE CHANGES.

Price changes in merchant bars, structural shapes, plates, wire nails merchant pipe, sheets and tin plates are given below, with dates. These are the commodities used in compiling our **composite finished steel.** In some cases the dates named are those upon which prominent producers announced price changes, but more frequently dates are merely those upon which our quotations were changed.

1912—			
Aug. 20	Plates	1.35	to 1.40
" 20	Shapes	1.35	to 1.40
" 26	Wire nails	1.65	to 1.70
Sept. 4	Tin plate	3.50	to 3.60
" 4	Sheets	2.05	to 2.10
" 11	Sheets	2.10	to 2.15
" 26	Bars	1.30	to 1.35
Oct. 8	Plates	1.40	to 1.45
" 8	Shapes	1.40	to 1.50
" 9	Bars	1.35	to 1.40
" 10	Plates	1.45	to 1.50
" 10	Shapes	1.45	to 1.50
" 17	Sheets	2.15	to 2.25
Dec. 10	Wire nails	1.70	to 1.75
1913—			
Jan. 2	Pipe	79%	to 80%
" 14	Sheets	2.25	to 2.35
Feb. 1	Plates	1.50	to 1.45
" 1	Shapes	1.50	to 1.45
Mar. 24	Wire nails	1.75	to 1.80
April 14	Pipe	80%	to 79½%
May 27	Pipe	79½%	to 79%
June 2	Wire nails	1.80	to 1.75
" 11	Sheets	2.35	to 2.30
" 18	Sheets	2.30	to 2.25
July 1	Wire nails	1.75	to 1.70
Aug. 9	Pipe (¾-3-in.)	79%	to 80%
" 12	Wire nails	1.70	to 1.65
" 21	Sheets	2.25	to 2.15
" 27	Plates	1.45	to 1.40
Sept. 1	Shapes	1.45	to 1.40
" 22	Sheets	2.15	to 2.05
Oct. 2	Tin plates	3.60	to 3.50
"	Wire nails	1.65	to 1.60
" 16	Plates	1.40	to 1.35
" 21	Plates	1.35	to 1.30
" 23	Shapes	1.40	to 1.35
" 24	Sheets	2.05	to 2.00
" 25	Pipe	2½% extra	discount
" 28	Bars	1.40	to 1.35
Nov. 3	Tin plate	3.50	to 3.40
" 7	Bars	1.35	to 1.30
" 7	Sheets	2.00	to 1.95
" 25	Bars	1.30	to 1.25
" 25	Plates	1.30	to 1.25
" 25	Shapes	1.35	to 1.30
" 28	Wire nails	1.60	to 1.55
Dec. 2	Sheets	1.95	to 1.90

1913—			
Dec. 3	Shapes	1.30	to 1.25
" 4	Plates	1.25	to 1.20
" 11	Bars	1.25	to 1.20
" 22	Shapes	1.25	to 1.20
" 31	Sheets	1.90	to 1.80
1914—			
Jan. 6	Wire nails	1.55	to 1.50
" 7	Sheets	1.80	to 1.85
" 13	Wire nails	1.50	to 1.55
" 23	Sheets	1.85	to 1.90
" 30	Sheets	1.90	to 1.95
Feb. 2	Pipe	80%	to 79½%
" 2	Wire nails	1.55	to 1.60
" 4	Shapes	1.20	to 1.25
Mar. 9	Shapes	1.25	to 1.20
" 20	Plates	1.20	to 1.15
April 1	Bars	1.20	to 1.15
" 8	Sheets	1.95	to 1.90
" 17	Shapes	1.20	to 1.15
" 20	Pipe	79½%	to 80%
" 27	Sheets	1.90	to 1.85
" 29	Tin plates	3.40	to 3.30
May 19	Bars	1.15	to 1.12½
" 22	Wire nails	1.60	to 1.55
" 26	Shapes	1.15	to 1.12½
" 29	Plates	1.12½	to 1.10
" 29	Wire nails	1.55	to 1.50
June 9	Sheets	1.85	to 1.80
" 19	Bars	1.12½	to 1.10
" 19	Shapes	1.12½	to 1.10
July 20	Wire nails	1.50	to 1.55
" 21	Bars	1.10	to 1.15
" 21	Shapes	1.10	to 1.15
" 23	Plates	1.10	to 1.15
" 30	Tin plate	3.30	to 3.35
Aug. 5	Tin plate	3.25	to 3.40
" 6	Sheets	1.80	to 1.85
" 11	Sheets	1.80	to 1.85
" 11	Bars	1.15	to 1.20
" 11	Shapes	1.15	to 1.20
" 14	Tin plate	3.40	to 3.60
" 21	Wire nails	1.55	to 1.60
" 31	Sheets	1.90	to 2.00
Sept 16	Tin plate	3.60	to 3.30
" 26	Sheets	2.00	to 1.95
" 29	Bars	1.20	to 1.15
" 29	plates	1.20	to 1.15
" 30	Tin plate	3.30	to 3.25

COMPOSITE STEEL.

Computation for October 1, 1914.

Pounds	Group.	Price.	Extension.
[illegible]	Bars	1.15	2.875
[illegible]	Plates	1.15	1.725
[illegible]	Shapes	1.20	1.800
[illegible]	Pipe (¾-3)	1.95	2.925
[illegible]	Wire nails	1.60	2.400
	Sheets (28 bl.)	1.95	1.950
	Tin plates	3.25	1.625
10 pounds			15.300
	One pound		**1.5300**

(Averaged from daily quotations.)

	1910.	1911.	1912.	1913.	1914.
Jan...	1.8625	1.7415	1.5123	1.7737	1.5394
Feb..	1.8475	1.7520	1.4878	1.7625	1.5794
Mar..	1.8475	1.7590	1.4790	1.7646	1.5638
April.	1.8400	1.7600	1.5206	1.7742	1.5337
May.	1.8325	1.7510	1.5590	1.7786	1.5078
June.	1.7955	1.6817	1.5794	1.7719	1.4750
July.	1.7755	1.6701	1.6188	1.7600	1.4805
Aug..	1.7550	1.6394	1.6784	1.7400	1.5421
Sept..	1.7470	1.6090	1.7086	1.7093	1.5630
Oct..	1.7350	1.5461	1.7588	1.6779	.....
Nov..	1.7305	1.4930	1.7750	1.6203	.....
Dec..	1.7380	1.4812	1.7789	1.5558	.....
Year.	1.7922	1.6570	1.6214	1.7241	.....

SCRAP IRON & STEEL PRICES.

	Melting Steel. Pitts	Bundled Sheet. Pitts.	No 1 R. R. Wrought. Pitts	No 1 Cast. Pitts.	No 1 Heavy Steel, Melt'g. Phila.	Chicago
1912—						
Year	13.76	11.92	14.16	13.28	13.82	12.30
1913—						
Jan.	15.00	13.10	15.35	14.65	14.50	12.75
Feb.	14.35	12.00	15.35	14.65	13.25	12.65
Mar.	14.35	11.60	15.35	14.60	13.60	12.50
Apr.	14.25	10.50	15.50	14.50	13.75	12.60
May	13.50	10.00	15.00	14.25	12.25	11.50
June	13.20	9.25	14.25	13.50	11.50	10.75
July	12.50	8.75	13.35	12.30	11.15	10.60
Aug.	12.40	8.25	13.25	12.50	11.85	10.75
Sep.	12.60	8.00	13.00	12.50	12.25	10.60
Oct.	12.25	7.40	13.00	12.40	11.20	10.35
Nov.	11.40	6.75	11.85	12.00	10.30	10.25
Dec.	11.00	6.40	11.65	11.60	9.75	9.25
Year	13.07	9.33	13.91	13.29	12.12	11.21
1914—						
Jan.	11.25	7.00	12.20	12.00	10.50	9.25
Feb.	12.00	8.25	12.80	12.50	11.50	10.70
Mar.	12.25	9.00	12.85	12.40	11.50	10.50
Apr.	12.25	9.00	12.00	12.15	10.80	10.00
May	11.75	9.10	11.75	12.25	10.60	10.00
June	11.75	9.10	11.75	12.25	10.50	9.80
July	11.75	8.50	11.75	11.50	10.60	9.75
Aug.	11.50	8.50	11.50	11.25	10.75	9.75
Sep.	11.25	8.70	10.50	11.25	10.75	9.25

COMPOSITE PIG IRON.

Computation for October 1, 1914.

One ton Bessemer, valley	$14.00
Two tons basic, valley (13.00)	26.00
One ton No. 2 foundry, valley	13.00
One ton No. 2 foundry, Philadelphia	14.45
One ton No. 2X foundry, Buffalo	13.25
One ton No. 2 foundry, Cleveland	13.75
One ton No. 2 foundry, Chicago	13.50
Two tons No. 2 Southern foundry, Cincinnati (12.90)	25.80
Total, ten tons	$133.75
One ton	**$13.375**

Averaged from daily quotations:

	1910.	1911.	1912.	1913.	1914.
Jan...	17.598	14.375	13.420	17.391	13.492
Feb..	17.215	14.340	13.427	17.140	13.721
Mar..	16.702	14.425	13.581	16.775	13.843
April	16.315	14.375	13.779	16.363	13.850
May.	15.750	14.242	13.917	15.682	13.808
June.	15.320	14.032	14.005	14.968	13.606
July.	15.131	13.926	14.288	14.578	13.520
Aug..	14.727	13.874	14.669	14.565	13.516
Sep...	14.612	13.819	15.386	14.692	13.503
Oct...	14.435	13.692	16.706	14.737	.....
Nov..	14.415	13.532	17.226	14.282	.....
Dec..	14.408	13.430	17.475	13.838	.....
Year.	15.552	14.005	14.823	15.418	.....

UNFINISHED STEEL AND IRON BARS.

(Averaged from daily quotations.)

	Billets. Pitts.	Sheet bars. Pitts.	Rods. Pitts.	— Iron bars, delv — Phila.	Pitts.	Chi'go.
1913—						
Mar.	29.00	30.00	30.00	1.65	1.65	1.58
Apr.	27.50	28.00	30.00	1.68	1.65	1.58
May	27.00	27.50	30.00	1.68	1.65	1.55
June	26.50	27.50	29.00	1.61	1.65	1.50
July	26.50	27.50	28.50	1.55	1.65	1.50
Aug.	25.75	26.50*	28.00	1.42	1.62	1.44
Sep.	24.00*	25.00*	27.37	1.33	1.59	1.37
Oct.	22.50	23.25	26.50	1.32	1.54	1.27
Nov.	20.50	21.50	26.00	1.30	1.45	1.15
Dec.	20.00	21.00	25.25	1.25	1.37	1.12
Year	25.55	26.43	28.39	1.51	1.59	1.45
1914—						
Jan.	20.00	20.25*	25.75	1.24	1.35	1.11
Feb.	21.00	22.00	26.00	1.28	1.35	1.14
Mar.	21.00	22.00	26.00	1.28	1.35	1.15
Apr.	20.75	21.75	25.50	1.23	1.31	1.14
May	20.00	21.00	26.00	1.23	1.29	1.10
June	19.50	20.35	25.00	1.23	1.25	1.08
July	19.50	20.00	25.00	1.19	1.25	1.06
Aug.	20.17	21.08	25.25	1.18	1.25	1.07
Sep.	20.75	21.75	26.00	1.18	1.20	1.07

* Premiums for Bessemer.

IRON AND STEEL IMPORTS AND EXPORTS.

VALUE OF TONNAGE AND NON-TONNAGE.

	1909.	1910.	1911.	1912.	1913.	1914.
January	$10,329,388	$14,513,394	$18,738,391	$18,451,914	$25,141,409	$16,706,836
February	10,947,159	13,949,082	18,690,792	21,801,570	24,089,871	16,520,260
March	13,873,746	17,253,503	22,591,991	24,474,799	27,221,210	20,551,137
April	13,058,297	16,529,260	24,916,912	26,789,853	27,123,044	20,639,569
May	12,964,367	17,658,042	20,616,795	28,050,247	26,718,970	19,734,045
June	13,779,736	16,503,204	20,310,053	24,795,802	25,228,346	18,927,958
July	11,866,772	16,108,102	17,454,772	24,917,952	24,170,704	16,737,552
August	14,134,487	17,628,537	20,013,557	25,450,107	23,947,440	10,428,773
September ...	12,966,908	16,776,178	19,875,308	23,286,040	22,831,082	.....
October	14,249,598	17,452,085	20,220,833	25,271,559	25,189,745	.....
November ...	14,434,690	18,594,806	20,823,061	26,406,425	20,142,141	.....
December ...	15,069,246	18,300,710	22,186,996	23,750,864	22,616,701	.....
Totals ...	$157,674,394	$201,271,903	$249,656,411	$289,128,420	$294,425,669	$140,245,699

EXPORTS OF TONNAGE LINES— Gross Tons.

	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January	102,630	74,353	70,109	118,681	152,362	151,575	249,493	118,770
February	87,912	81,773	84,837	110,224	150,919	204,969	241,888	121,206
March	112,787	96,681	94,519	124,980	216,360	218,219	257,519	159,998
April	132,790	93,285	100,911	117,921	228,149	267,313	259,689	161,952
May	91,543	64,041	109,808	135,306	178,589	307,656	242,353	139,107
June	92,996	69,770	114,724	120,601	174,247	273,188	243,108	144,003
July	122,240	86,796	100,850	127,578	162,855	272,778	237,159	114,790
August	118,792	86,244	105,690	131,391	177,902	282,645	209,856	86,599
September	114,819	76,732	97,641	119,155	181,150	248,613	213,058	.....
October	123,170	85,766	110,821	129,828	186,457	251,411	220,495	.....
November	116,309	71,130	116,105	155,138	187,554	233,342	175,961	.....
December	86,019	77,659	137,806	150,102	190,854	235,959	195,719	.....
Totals ...	1,301,979	961,242	1,243,567	1,540,895	2,187,724	2,948,466	2,559,232	1,046,425

IRON ORE IMPORTS.

	1911.	1912.	1913.	1914.
Jan. . .	102,600	154,118	175,463	101,804
Feb. ..	94,820	129,693	188,734	112,574
Mar. ..	134,785	157,469	164,865	68,549
April ..	133,900	178,502	174,162	111,812
May ..	217,467	194,482	191,860	125,659
June . .	118,296	180,122	241,069	188,647
July . .	200,845	185,677	272,017	141,838
Aug. .	175,183	178,828	213,139	135,693
Sep. . .	184,456	180,571	295,424	.....
Oct. .	172,459	202,125	274,433	.....
Nov. .	128,019	163,017	179,727	...
Dec. ..	148,902	199,982	223,933	.....
Totals	1,811,732	2,104,576	2,594,826	986,576

IRON AND STEEL IMPORTS.

	1910.	1911.	1912.	1913.	1914.
Jan..	56,207	35,071	20,008	21,740	17,835
Feb..	43,613	20,812	11,622	25,505	14,309
Mar..	54,176	23,533	15,466	27,467	27,829
April	47,698	22,392	12,481	25,742	30,585
May.	42,569	23,347	15,949	28,728	28,169
June.	30,322	29,399	21,407	36,597	23,076
July	41,933	15,782	17,882	39,694	25,282
Aug..	36,879	10,944	20,571	18,740	28,768
Sep..	30,961	14,039	18,740	19,941	.....
Oct..	31,455	21,035	25,559	20,825	.....
Nov..	40,585	13,880	24,154	25,809	.....
Dec..	31,575	19,665	21,231	26,453	.....
Total	487,973	256,903	225,072	317,244	195,853

IRON AND STEEL.

CAR BUYING.

Freight cars ordered		
First half 1912	85,000	
Second half 1912	150,000	
Year 1912		235,000
First half 1913	114,000	
Second half 1913	33,000	
Year 1913		147,000
January, 1914	10,000	
February	13,000	
March	7,000	
April	10,000	
May	9,000	
June	15,000	
July	6,800	
August	1,100	
September	95	
Nine months, 1914		72,000
Equivalent rate per year		96,000

PIG IRON PRODUCTION.

Daily rate of production of coke and anthracite pig iron, gross tons.

	1910	1911.	1912.	1913.	1914.
Jan	84,148	56,752	66,384	90,172	60,808
Feb	85,616	64,090	72,442	92,369	67,453
Mar.	84,459	70,036	77,591	89,147	75,738
April	82,792	68,886	79,181	91,759	75,665
May	77,102	61,079	81,051	91,039	67,506
June	75,516	59,585	81,358	87,619	63,916
July	69,305	57,841	77,738	82,601	63,150
Aug.	67,963	62,150	81,046	82,057	64,363
Sep.	68,476	65,903	82,128	82,531	62,753
Oct.	67,520	67,811	86,722	82,133	.....
Nov.	63,659	66,648	87,697	74,453	.....
Dec.	57,349	65,912	89,766	63,987	.....

RAILROAD EARNINGS.

The following table is compiled from the monthly reports of the Interstate Commerce Commission, and cover all railroads in the United States having gross income of $1,000,000 or over per year. The statements are per mile of road operated, and show gross revenue from operations, operating expenses and net operating revenue.

	1911-12			1912-13			1913-14		
	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.
July ...	$1,025	$698	$327	$1,113	$750	$363	$1,161	$814	$348
Aug. ...	1,119	726	393	1,211	776	435	1,219	831	388
Sept. ...	1,147	735	411	1,206	775	430	1,237	832	405
Oct. ...	1,175	749	425	1,311	827	484	1,294	870	424
Nov. ...	1,093	734	360	1,213	806	407	1,163	824	339
Dec. ...	1,046	720	326	1,159	799	360	1,100	800	299
Jan. ...	932	728	203	1,087	803	284	1,005	776	229
Feb. ...	964	710	254	1,011	752	259	900	729	171
Mar. ...	1,051	746	305	1,081	799	282	1,076	782	294
April ..	974	717	257	1,065	802	262	1,021	763	258
May .	1,030	735	295	1,150	830	320	1,030	779	250
June ...	1,075	737	339	1,135	803	334	1,079*	768*	311*
Totals.	$12,621	$8,725	$3,895	$13,737	$9,519	$4,219	$13,266	$9,519	$4,219

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COPPER.

THE COPPER SITUATION.

September opened with the market stagnant and with producers holding at 12½c delivered 30 days for electrolytic, with hopes strong that the curtailment in the smelter production initiated at the outbreak of the war, and which had reached a reduction of 50%, would result in keeping market steady until more normal conditions in business and finances were restored. It was also thought that the heavy increase in costs from reduced operations, would be a deterrent influence in producers lowering their price, even if a long dull spell had to be faced. But with a falling off in export orders even greater than was experienced in August, England proceeded to stop metal in neutral bottoms to Holland, intended for Germany and Austria, and discharging the copper they contained in England as being conditional contraband of war, and with trade here showing no improvement, second hands began to cut prices. Around September 20th producers reduced their price ½c a pound to 12c delivered, booking a fair amount of business at the decline. This failed, however, to restore confidence, because it was realized that there must have accumulated a large surplus of stocks in producers hands since the war began, as result of the falling off in exports and American consumption, and the fact that while the heavy curtailment had taken place at the smelters, it would not be shown in the refining output until the beginning of October. What the increase in stocks had probably been became the subject of considerable discussion, and estimates as to present stocks ran from 185,000,000 pounds to 240,000,000 pounds. Even if an average of the highest and lowest estimates were taken, it would bring the stocks over 215,000,000 pounds as compared with 106,110,663 pounds at the last producers statement on July 1st, and with 183,198,073 pounds May 1st, 1909, which was the largest on record In other words, a stock that could not be increased with impunity in the present state of finances.

The month closed with market being cut by second hands, and producers ready to accept concessions, which concessions were established by moderate sales by producers at 11¾c delivered 30 days about Oct. 5.

The outlook continues very uncertain, with prospect of even lower prices, unless an improvement takes place in American consumption, as there are no prospects of any increased export for some time to come, in fact, not until the war ends, or England loses control of the seas. Germany and Austria are in great need of the metal and prices equal to 5c to 7c per pound over prices here are ruling in these countries, but at present owing to England's activities there seems to be no way of getting the metal to them.

The decline in the price of copper since the war opened has been slightly over 1c a pound, and has brought the prices down

COPPER PRICES IN SEPTEMBER.

	New York		
	Lake. Cents.	Electro. Cents.	Casting. Cents.
1	12.62½	12.30	12.20
2	12.62½	12.30	12.20
3	12.62½	12.30	12.20
4	12.62½	12.25	12.20
5			
6			
7			
8	12.62½	12.25	12.20
9	12.50	12.25	12.20
10	12.52½	12.25	12.20
11	12.52½	12.25	12.20
12			
13			
14	12.52½	12.25	12.20
15	12.50	12.15	12.07½
16	12.50	12.15	12.05
17	12.50	12.15	12.05
18	12.45	12.07½	12.00
19			
20			
21	12.31¼	11.93¾	11.81¼
22	12.31¼	11.93¾	11.81¼
23	12.25	11.85	11.75
24	12.25	11.85	11.75
25	12.25	11.85	11.75
26			
27			
28	12.25	11.85	11.75
29	12.25	11.85	11.75
30	12.25	11.75	11.65
High	12.52½	12.35	12.25
Low	12.00	11.70	11.60
Average	12.40	12.05	12.00

COPPER.

to the lowest figure since 1902. In the panic of 1907 the price did not go below 12¾c.

It was inevitable that copper should be a great sufferer from the war, since we have of late years exported to Europe fully one-half of our entire output. Only the fact that prices previous to the war had sunk to a very low level, and that producers instantly cut down their smelter output 50%, has prevented the decline not having been greater. Some day the war must end, and an enormous demand must be faced for instant satisfaction from the European countries that have been starving for copper in the meanwhile. Where will the supply to meet this demand be if we have in the meantime kept half our normal production in the Earth, and what will be the effect on prices when this demand strikes us?

EXPORTS OF COPPER.

The exports of copper, pigs, ingots, bars, plates, rods, scrap and manufactures of, for the eight months ending August and for the corresponding period last year were as follows:

	1914 (pounds)	1913 (pounds)
Austria-Hungary ..	26,989,548	22,736,108
Belgium	5,429,717	4,899,372
France	103,534,485	103,654,185
Germany	176,698,948	205,643,376
Italy	28,882,838	28,643,882
Netherlands	113,733,640	125,646,213
Russia	8,048,900	5,497,891
Great Britain	120,977,893	89,269,421
Other Europe	12,604,463	8,153,875
Canada	19,083,758	25,843,487
Other Countries ...	7,196,748	3,300,747
Total	623,180,938	623,288,557

SHEET COPPER REDUCED TO 17c BASE.

The leading manufacturers of sheet copper have reduced the base price of sheet copper ½c per pound to 17.00c effective October 1st.

Including this reduction the changes in the base price of sheet copper so far this year are given in the following table together with the prices of Lake copper on the same dates.

1914—	Sheet Copper.	Lake Copper.
January 2	20.25	15.37½
February 2	20.00	15.12½
March 13	19.75	14.50
May 13	19.50	14.43¾
May 22	19.25	14.43¾
June 15	19.00	14.18¾
July 27	18.50	13.43¾
August 18	18.00	12.62½
September 1	17.50	12.62½
October 1	17.00	12.12½

The charge for tinning sheets, on one side was advanced ½c on September 1st to 3½c per square foot.

COMPOSITE METAL PRICES.

Computation for October 1, 1914:

Pounds.	Metal.	Price.	Extension.
2½	Spelter (St. Louis)	4.90	12.250
4	Lead (St Louis)	3.55	14.200
3	Copper (Electro)	11.75	35.250
½	Tin (New York)	31.12½	15.562
10 pounds			77.262
	One pound		7.7262

Monthly averages:

	1910.	1911.	1912.	1913.	1914.
Jan. ..	9.084	8.908	9.778	10.987	9.105
Feb. ..	8.881	8.915	9.677	10.260	9.294
Mar. .	8.778	8.797	9.886	10.024	9.026
April .	8.568	8.795	10.277	10.198	8.844
May .	8.413	8.795	10.468	10.163	8.678
June .	8.562	9.154	11.014	9.648	8.431
July .	8.338	9.100	11.043	9.398	8.345
Aug. .	8.479	9.188	11.092	10.025	9.111
Sept. .	8.569	8.928	11.575	10.350	8.067
Oct. .	8.747	8.990	11.596	10.029	.
Nov. .	8.888	9.306	11.372	9.590	.
Dec. .	8.881	9.675	11.219	9.053	.
Year .	8.665	9.046	10.750	9.977	

Copper Producer's Figures.

The Copper Producers' Association issued no statement to-day (Oct. 8th) and the date of resumption of publication of monthly statistics is indefinite. The last monthly report issued by the association was for June 30th.

COPPER.

LAKE COPPER PRICES.

Average monthly prices of Lake Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.81	12.75	14.37½	16.89	14.76½
Feb.	13.76½	12.73	14.38½	15.37½	14.98
Mar.	13.71½	12.56	14.87	14.96	14.72
April	13.31	12.41	15.98	15.55	14.68
May	12.98	12.32	16.27	15.73	14.44
June	12.83½	12.63	17.43	15.08	14.15
July	12.62½	12.72	17.37	14.77	13.73
Aug.	12.78½	12.70	17.61	15.79	12.68
Sept.	12.72	12.57	17.69	16.72	12.44
Oct.	12.60	12.47	17.69	16.81	.....
Nov.	12.60	12.84	17.66	15.90	.....
Dec.	12.92	13.59	17.62	14.82	.....
Av.	13.12	12.71	16.58	15.70	.....

ELECTROLYTIC COPPER PRICES.

Average monthly prices of Electrolytic Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.68	12.53	14.27	16.75½	14.45
Feb.	13.51	12.48	14.26	15.27	14.67
Mar.	13.42½	12.31	14.78	14.92½	14.33½
April	12.93	12.15½	15.85	15.48	14.34
May	12.67	12.13	16.16	15.63	14.13
June	12.59	12.55	17.29	14.85	13.81
July	12.36½	12.62½	17.35	14.57	13.49
Aug.	12.56	12.57½	17.60	15.68	12.41½
Sep.	12.49	12.39	17.67	16.55	12.09
Oct.	12.77½	12.36	17.60	16.54	.....
Nov.	12.87½	12.77	17.49	15.47	.....
Dec.	12.72	13.71	17.50	14.47	.....
Av.	12.85	12.55	16.48	15.52	.....

CASTING COPPER PRICES.

Average monthly price of Casting Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.60	12.39	14.02	16.57	14.27½
Feb.	13.41	12.33	14.02	15.14	14.48
Mar.	13.31	12.20	14.53	14.76	14.18
April	12.87	12.07	15.72½	15.33	14.18
May	12.62	12.08	16.01	15.45½	14.00
June	12.52	12.40	17.08	14.72	13.65
July	12.30	12.49½	17.09	14.40½	13.34½
Aug.	12.48	12.42	17.35	15.50	12.27
Sept.	12.46	12.23	17.51	16.37½	12.00
Oct.	12.70	12.21	17.44	16.33	.....
Nov.	12.82	12.61	17.34	15.19	.....
Dec.	12.64	13.56½	17.34	14.22	.....
Av.	12.81	12.42	16.29	15.33	.....

VISIBLE SUPPLY OF COPPER.

Visible supply of copper at the end of each month based on the returns of the Copper Producers' Association and H. R. Merton & Company.

	Stocks in American Producers' hands.	European Visible Supply.	Combined Visible Supply.
1910—			
June ..	168,386,017	232,863,680	401,249,697
July ..	170,640,678	222,295,360	392,936,038
Aug. ..	168,881,245	218,413,440	387,294,685
Sept. ..	148,793,714	210,472,640	359,266,354
Oct. ..	139,261,914	198,065,280	337,327,194
Nov. ..	130,389,069	193,200,000	323,589,069
Dec. ..	122,030,195	187,705,280	309,735,475
1911—			
Jan. ..	142,439,490	*236,976,320	379,415,810
Feb. ..	156,637,770	226,210,880	382,848,650
Mar. ..	162,007,934	223,030,080	385,038,014
April ..	165,555,908	212,280,320	377,836,228
May ..	165,995,932	202,413,120	368,409,052
June ..	157,434,164	195,937,280	353,371,444
July ..	137,738,858	192,584,000	330,322,858
Aug. ..	133,441,501	191,215,360	324,656,861
Sept. ..	140,894,856	191,945,600	332,840,456
Oct. ..	134,997,642	176,816,640	311,814,282
Nov. ..	111,785,188	164,151,680	275,936,868
Dec. ..	89,454,695	158,329,920	247,784,615
1912—			
Jan. ..	66,280,643	153,820,800	220,101,443
Feb. ..	62,939,988	141,135,680	204,075,668
Mar. ..	62,367,557	136,808,000	199,175,557
April ..	65,066,029	134,155,840	199,221,869
May ..	49,615,643	117,797,120	167,412,763
June ..	44,335,004	107,817,920	152,152,924
July ..	50,280,421	113,290,240	163,570,661
Aug. ..	46,701,374	113,783,040	160,484,414
Sept. ..	63,065,587	107,403,520	170,469,107
Oct. ..	76,744,964	103,801,600	180,546,564
Nov. ..	86,164,059	96,938,240	183,102,299
Dec. ..	105,312,582	96,857,600	202,170,182
1913—			
Jan. ..	123,198,332	96,546,240	219,744,572
Feb. ..	122,302,198	100,067,520	222,369,718
Mar. ..	104,269,270	†100,965,760	205,235,030
April ..	75,549,108	98,374,720	173,923,828
May ..	67,474,225	90,018,880	157,493,105
June ..	52,904,606	85,559,040	138,463,646
July ..	53,594,945	79,804,480	133,399,425
Aug. ..	38,314,037	76,260,800	114,574,837
Sept. ..	29,793,094	62,314,560	92,107,654
Oct. ..	32,566,382	57,854,480	90,420,862
Nov. ..	47,929,429	59,935,680	107,865,109
Dec. ..	91,438,867	66,124,800	157,563,667
1914—			
Jan. ..	87,296,685	58,114,560	145,411,245
Feb. ..	78,371,852	60,374,720	138,746,572
Mar. ..	64,609,319	58,528,960	123,138,279
April ..	70,317,001	65,582,720	135,919,721
May ..	84,212,641	72,568,800	156,851,441
June ..	106,110,663	74,527,040	180,637,703
July ..	Statistics suspended indefinitely.		

* Hamburg and Rotterdam stocks included.
† Bremen stocks included.

TIN

THE TIN SITUATION.

The month opened at 38c for Straits with the market dull and stagnant, and there were evidences that the sensational doubling of price during August as result of the outbreak of war and fright over getting supplies, and the collapse in prices when it was seen that in spite of the obstacles enough tin would be forthcoming for our requirements, had greatly disorganized and hurt the consuming trade.

Market steadily declined each day on stagnant demand, and good shipments from London, until the middle of the month when 31½c had been reached. At that time buyers began to show interest on account of the heavy decline, and the low prices that had been reached, namely 31¾c as compared with the average prices of

44.32c for 1913
46.42c for 1912
42.68c for 1911

and sellers being shy prices improved to 32c on September 21st, but later declined to 30⅞c in a few days, the month closing at 31c.

The Straits shipments were larger than generally expected (4,973 tons) and it is explained that it resulted from an accumulation in August, created by difficulties at that time in finances and freight room, but it is positively stated that from now on the reduced output at the tin fields will be seen in much smaller shipments.

Shipments from the Straits for September were 187 tons smaller than for the same month of last year. For the nine months of this year the increase in shipments amounts to 136 tons, compared with the same time last year.

Australia shipped in September 300 tons less compared with the same month of last year. For the nine months of this year the shipments were 650 tons smaller compared with last year.

American deliveries into consumption during September were good, amounting to 3,600 tons. The total for nine months shows a decrease of 800 tons compared with the same time last year.

The combined deliveries of London and Holland for September were 42 tons smaller than that month last year. For the nine months the decrease in deliveries amounts to 1,241 tons, compared with the same time last year.

The visible supply is 14,613 tons, or 161 tons larger than a month ago, and 1,670 tons larger than a year ago, when price was 10 cents per pound higher.

The situation as regards future supplies is a serious one. The best information is that on account of low prices, and difficulties of financing the tin fields in the East Indies the Straits output will be only two thirds of normal, while the output of Bolivian and South Africa will be greatly reduced for the same reasons, and also because their smelting facilities are to a great extent cut off, since the bulk of their concentrates have in the past been smelted in Germany. It is true the consumption of the Continent is virtually stopped by the war, but so is the output that supplied it. The question is, how can stocks in England and America fail to shrink if the Straits output is curtailed as seems certain? No reduction of any amount is expected to take place in the consumption of Tin in these two countries.

While consumers acknowledge all this their attitude with a few exceptions seems to be that there is no need for worry as to the future, that in some way the serious obstacles regarding a full supply will be overcome, and even if visible supply and stocks

TIN PRICES IN SEPTEMBER.

New York

Date.	Cents.		Cents.
1	38.00	16	31.37
2	37.50	17	31.37
3	36.50	18	31.37
4	36.00	19	
5		20	
6		21	32.00
7		22	31.37
8	34.00	23	31.00
9	35.50	24	31.37
10	33.00	25	31.00
11	32.00	26	
12		27	
13		28	30.87
14	31.62½	29	30.87
15	31.50	30	31.00

High	38.00
Low	30.87
Average	32.79

LEAD.

slump London traders and speculators are in no position now to do business or exploit the situation. The American consumers will make the price of tin for the present, free of speculative interests. Others who are not close students of the market take the view that the situation is more serious than the consumer believes, and that before long they will have a rude awakening.

THE LEAD SITUATION.

September opened with the market dull at 3.90c New York and 3.75c E. St. Louis, having been the only metal that had not been affected by the war as regards our international trade. But it was evident that consumption in this country was being affected by the general unsettlement in business and finances, although how much was a pure guess, as no statistics are available in this metal regarding output, consumption, and stocks, except the incomplete ones which the Government are able with great difficulty to get at the end of each year.

Market continued stagnant until about the middle of the month when Independents began to cut the Trust price to get business, going as low as 3⅝c E. St. Louis. This resulted in the Trust reducing their price $3.00 per ton on September 24th to 3.75c New York, equivalent to 3.60c E. St. Louis. But this did not have the slightest effect in increasing buying interest, but rather to make buyers more shy, especially as their trade seemed to be getting worse rather than better.

Since then there has been continued efforts to get business by the Independents by shading the Trust price, and on October 5th another cut in price was made by the Trust to 3.60c New York, following it with another cut to 3.50c New York, equal to 3.35c E. St. Louis on October 6th.

This is the lowest price in fifteen years, and is the price touched in the panic of 1907. The price is evidently being put down to force a reduction in output and producers have the choice of curtailing their output and checking the decline, or else they can continue to keep running a little longer until still lower prices oblige them to curtail. If 3½c New York does not bring the cure, the prospects are the leading interest is prepared to put the price still lower. Buyers are demoralized, and the lower prices have developed no buying.

The change in the Trust price at New York since the beginning of the year have been as follows:—

1914

January 1, opening price...	4.15
January 9, reduced.....	5c to 4.10
February 2, advanced.....	5c to 4.15
February 11, reduced.....	15c to 4.00
March 25, reduced.....	10c to 3.90
March 30, reduced.....	10c to 3.80
April 27, advanced.....	10c to 3.90
September 24, reduced.....	15c to 3.75
October 5, reduced.....	15c to 3.60
October 6, reduced.....	10c to 3.50

The yearly fluctuations in the price of lead in New York since 1900 are given below:

	High	Low	Average
1900	4.75	3.75	4.41
1901	4.37½	4.00	4.36
1902	4.15	4.00	4.10
1903	4.70	4.10	4.26
1904	4.60	4.10	4.32
1905	6.25	4.45	4.70
1906	6.35	5.35	5.66
1907	6.35	3.50	5.35
1908	4.60	3.65	4.23
1909	4.75	3.95	4.30
1910	4.75	4.37½	4.49
1911	4.60	4.25	4.46
1912	5.15	4.00	4.48
1913	4.85	4.00	4.00
1914*	4.15	3.50	..

*Up to October 5th.

LEAD (Monthly Averages.)

	—New York*—			—St. Louis—		
	1912.	1913.	1914.	1912.	1913.	1914.
Jan.	4.44	4.35	4.11	4.34	4.20	3.99½
Feb.	4.04	4.35	4.06	3.99	4.20	3.95
Mar.	4.07	4.35	3.97	4.06	4.21	3.83
Apr.	4.20	4.40	3.82	4.14	4.25½	3.70
May	4.20	4.36	3.90	4.09	4.22	3.81
June	4.39½	4.35	3.90	4.31	4.21	3.80
July	4.73	4.37	3.90	4.60	4.25	3.75
Aug.	4.56½	4.63	3.90	4.46	4.56	3.73
Sep.	5.05	4.75	3.86	4.94	4.62	3.67
Oct.	5.10	4.45	.	4.91	4.31	.
Nov.	4.69	4.34		4.50	4.18	.
Dec.	4.36	4.06		4.19	3.94	.
Year	4.48	4.40		4.38	4.26	.

* Trust price.

TIN.

VISIBLE SUPPLIES.

Total visible supply of tin at the end of each month.

	1910.	1911.	1912.	1913.	1914.
Jan...	23,024	18,616	16,707	13,971	16,244
Feb. .	21,288	17,260	14,996	12,304	17,308
Mar..	20,203	16,682	15,694	11,132	16,989
Apr..	17,932	14,441	11,893	9,822	15,447
May.	18,998	15,938	14,345	13,710	17,862
June.	15,700	16,605	12,920	11,101	16,027
July .	17,433	16,707	13,346	12,063	14,167
Aug. .	17,943	16,619	11,285	11,261	14,452
Sept..	18,999	16,672	13,245	12,943	14,613
Oct. .	18,183	14,161	10,735	11,857	.....
Nov..	18,875	16,630	12,348	14,470	.....
Dec..	17,194	16,514	10,977	13,893	.....
Av'ge	18,815	16,404	13,207	12,377	.....

SHIPMENTS FROM THE STRAITS.

Monthly shipments of tin from the Straits Settlements to Europe and United States, as per Powell's returns:

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	5,733	5,895	4,290	4,018	6,050	5,290
Feb.	4,033	4,147	4,290	5,260	4,660	6,520
Mar.	3,380	2,877	4,510	5,150	4,810	4,120
Apr.	4,904	4,025	3,140	4,290	4,400	4,930
May	5,184	4,965	4,310	5,760	6,160	6,900
June	4,618	4,120	5,050	4,290	4,820	5,870
July	5,644	5,040	4,660	4,580	4,770	4,975
Aug.	4,702	5,700	4,680	5,210	5,990	3,315
Sep.	5,081	4,220	5,150	5,430	5,160	4,973
Oct.	3,801	4,480	4,350	4,450	5,020	.....
Nov.	5,510	4,840	5,070	5,600	5,560	.....
Dec.	5,835	4,270	5,970	4,980	5,110	.....
	58,425	54,579	55,470	59,018	62,550	
Av..	4,869	4,548	4,622	4,918	5,215	

CONSUMPTION IN THE UNITED STATES.

Monthly deliveries of tin in the United States exclusive of Pacific Coast.

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	3,200	3,500	3,200	3,700	3,700	3,600
Feb.	2,700	3,600	3,800	4,050	3,500	3,300
Mar.	3,900	4,000	5,100	4,000	5,900	4,450
Apr.	4,904	4,025	3,140	4,290	4,400	4,900
May	3,900	3,600	3,400	4,250	3,350	3,800
June	3,200	5,000	2,900	2,850	3,800	3,650
July	3,600	3,800	4,300	5,150	3,900	3,900
Aug.	3,300	3,700	3,800	4,300	3,600	2,900
Sep.	3,200	3,300	4,200	3,600	3,100	3,600
Oct.	4,100	3,350	3,500	3,850	3,700	.....
Nov.	4,000	3,800	3,100	4,300	2,800	.....
Dec.	3,200	3,600	3,700	4,050	3,100	.....
	41,500	45,350	44,300	49,500	43,900	
Av.	3,458	3,779	3,692	4,125	3,658	

MONTHLY TIN STATISTICS.

Compiled by New York Metal Exchange.

Straits shipments	Sept. 1914.	Aug. 1914.	Sept. 1913.
To Gt. Britain.	3,453	2,502	3,160
" Continent .	40	18	760
" U. S.	1,480	795	1,240
Total from Straits	4,973	3,315	5,160
Australian shipments:			
To Gt. Britain.	50	150	350
" U. S.	nil	nil	nil
Total Australian	50	150	350
Consumption:			
London deliveries	1,269	954	1,451
Holland deliveries	1,482	149	1,342
United States*.	3,600	2,900	3,100
Total	6,351	4,003	5,893
Stocks at close of month:			
In London	4,006	3,835	1,921
" " (Stand)	2,744	3,188	†
" Holland	375	157	1,755
" U. S.*	1,603	1,077	2,542
Total . .	8,728	8,257	6,218
Afloat at close of month:			
To London	3,555	3,460	3,727
" Holland .. .		10	183
" U. S.*	2,330	2,725	2,815
Total .	5,885	6,195	6,725
	1914.	1914.	1913.
Total visible supply . .	Sep. 30, 14,613	Aug. 31. 14,452	Sep. 30, 12,943

* Exclusive of Pacific ports.
† Not reported.

TIN AND SILVER. (Monthly Averages.)

	New York — Tin			New York — Silver		
	1912.	1913.	1914.	1912.	1913.	1914.
Jan.	43.24	50.45	37.74	56.22	62.93	57.56
Feb.	43.46	48.73	39.93	59.04	61.64	57.50⅛
Mar.	42.86	46.88	38.08	58.37	57.87	58.07
Apr.	44.02	49.12	36.10	59.23	59.49	58.52
May	46.12	49.14	33.30	60.88	60.36	58.18
June	47.77	44.93	30.65	61.29	58.99	56.47
July	44.75	40.39	31.75	60.66	58.72	54.68
Aug.	44.75	41.72	50.59½	61.61	59.29	54.34
Sep.	49.18	42.47	32.79	63.08	60.64	53.29
Oct.	50.11	40.50	.....	63.47	60.79	.....
Nov.	49.90	39.81	.....	62.79	58.99	.....
Dec.	49.90	37.64	.....	63.37	57.76	.....
Year	46.434	4.32	.....	60.83	59.79½	.....

SPELTER.

THE SPELTER SITUATION.

The month opened at 5⅞c E. St. Louis, the export war demand that had in August advanced prices from 4¾c E. St. Louis to 6c per pound showing signs of diminishing. This demand in a few days entirely stopped, caused by the embargo that had been put on the metal by the English Government having been withdrawn, and that market being flooded by offers to sell from this side, and on a stagnant market prices steadily declined to 5.30c by the middle of the month. At that time some demand from abroad again developed, and prices were steady for a few days, but the foreign demand being again filled, and there being virtually no American buying, which has been the case all through the month, prices declined to 5c by September, 24th, and closed for the month lifeless at 4.95c f.o.b. E. St. Louis, since declining Oct. 6th) to 4.72½c.

The exports since the war demand set in early in August, have been to 17,000 tons, and to that extent the very large stocks held by producers July 1st around 65,000 tons might be said to have been somewhat depleted. But home consumption has been very poor in consequence of the stagnation in the steel and copper trade, the metals in conjunction with which (Galv. Iron & Brass) Spelter is principally used, also the recent high prices stopped the closing down of output such as would undoubtedly have taken place had not the sudden demand for export and high prices taken place, and it is doubtful if the stocks to-day in producers hands are much smaller than they were July 1st. In fact, the decline to as low a price as they were before the war, would seem to indicate that these stocks are now even larger than on July 1st.

Except that prices are very low there is nothing favorable in the situation, and nothing to encourage the producer in continuing his present rate of output. Unless production is cut down, spelter cheap as it is, may go lower, unless some new foreign demand strikes us or unless some improvement in the American consumption develops which seems very unlikely at present.

SPELTER (Monthly Averages.)

	New York.			St. Louis.		
	1912.	1913.	1914.	1912.	1913.	1914.
Jan.	6.55	7.23	5.33	6.40	7.04	5.14
Feb.	6.70	6.49	5.46	6.53	6.25	5.27
Mar.	[illegible]	6.29	5.35	6.74	6.08	5.15
Apr.	6.87	5.79	5.22	6.66	5.59	5.03
May	6.89	5.51	5.16	6.71	5.31	4.96
June	7.05	[illegible]	[illegible]	[illegible]	5.05	4.93
July	7.23	5.41	5.03	7.04	5.23	4.84
Aug.	[illegible]	5.80	[illegible]	6.94	5.64	5.45
Sep.	7.55	5.82	[illegible]	[illegible]	5.65	5.33
Oct.	7.61	[illegible]		[illegible]	5.27	[illegible]
Nov.	7.50	5.24		[illegible]	5.15	[illegible]
Dec.	7.36	[illegible]		[illegible]	5.03	
	7.11	5.80		6.90	5.61	[illegible]

SPELTER AND LEAD PRICES IN SEPTEMBER.

	— Spelter —		— Lead —	
	New York.	St. Louis.	*New York.	St. Louis.
1	6.05	5.85	3.90	3.73¾
2	6.00	5.82½	3.90	3.73¾
3	5.95	5.75	3.90	3.73¾
4	5.90	5.70	3.90	3.73¾
5	[illegible]	[illegible]	[illegible]	[illegible]
6				
7	[illegible]	[illegible]		
8	5.85	5.65	3.90	3.73¾
9	5.80	5.60	3.90	3.72½
10	5.65	5.47½	3.90	3.72½
11	5.65	5.47½	3.87½	3.70
12	[illegible]	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]	[illegible]
14	5.50	5.32½	3.87½	3.70
15	5.45	5.27½	3.87½	3.70
16	5.45	5.25	3.87½	3.70
17	5.42½	5.22½	3.87½	3.70
18	5.42½	5.22½	3.85	3.68¾
19	[illegible]	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]	[illegible]
21	5.35	5.17½	3.85	3.67½
22	5.30	5.12½	3.82½	3.63¾
23	5.30	5.10	3.82½	3.62½
24	5.20	5.00	3.75	3.60
25	5.20	5.00	3.72½	3.57½
26	[illegible]	[illegible]	[illegible]	[illegible]
27	[illegible]	[illegible]	[illegible]	[illegible]
28	5.20	5.00	3.72½	3.57½
29	5.17½	4.97½	3.70	3.57½
30	5.12½	4.95	3.70	3.55
High	6.10	5.85	3.90	3.75
Low	5.10	4.95	3.70	3.55
Average	5.52	5.33	3.839	3.673

SPELTER.

EXPORTS OF SPELTER.

Spelter in pigs, bars, plates and sheets.

Domestic.

	Quantity	Value
Aug. 1914	6,866,501 lbs	$479,283
Aug. 1913	1,062,996 lbs	61,784
Eight Months		
Ending Aug. 1914...	8,756,577	596,225
Ending Aug. 1913...	15,087,244	921,964
Ending Aug. 1912...	12,815,209	829,726

Foreign.

	Quantity	Value
Aug. 1914	638,061 lbs	$43,548
Aug. 1913	56,026 lbs	3,063
Eight Months		
Ending Aug. 1914.....	693,179	16,182
Ending Aug. 1913.....	1,071,885	58,609

SPELTER (Monthly Averages.)

	— New York —			— St. Louis —		
	1912.	1913.	1914.	1912.	1913.	1914.
Jan.	6.55	7.23	5.33	6.39½	7.04	5.14
Feb.	6.70	6.49	5.46	6.53	6.25	5.27
Mar.	6.93	6.29	5.35	6.74	6.08	5.15
Apr.	6.87	5.79	5.22	6.66	5.59	5.03
May	6.89	5.51	5.16	6.71	5.31	4.96
June	7.05	5.23½	5.12	6.85½	5.05	4.95
July	7.23	5.41	5.03	7.04	5.23	4.84
Aug.	7.13	5.80	5.63	6.94	5.64	5.45
Sep.	7.55	5.83	....	7.37	5.65	....
Oct.	7.61	5.47	....	7.39	5.27	....
Nov.	7.50	5.34	....	7.32	5.15	....
Dec.	7.36	5.22	....	7.19	5.03	....
Year	7.11	5.80	....	6.93	5.61	....

Waterbury Averages for September.

Lake Ingot Copper . . 12.87
Brass Mill Spelter . . 5.91

	— Copper — Lake —		— Copper — Electro	— Spelter —	
	1913.	1914.	1914.	1913	1914
Jan...	17.00	14.75	....	7.56	5.54
Feb...	15.50	15.12½	.....	6.81	5.70
Mar...	15.12½	15.00	14.50	6.56	5.59
Apr...	15.75	14.87½	14.37½	6.08	5.50
May..	15.87½	14.75	14.25	5.77	5.38
June.	15.37½	14.37½	13.87½	5.50	5.37
July.	14.75	14.12½	13.62½	5.61	5.26
Aug. .	15.62½	13.00	....	5.99	5.66
Sept.	16.87½	12.87½	.	6.45	5.91
Oct.	16.87½	.	.	5.74	.
Nov..	16.25	....	.....	5.60	....
Dec..	15.00	.	.	5.44	.
Year.	15.83	.....	.....	6.06½	....

REVIEW OF THE JOPLIN ORE MARKETS FOR SEPTEMBER.

Ushered in with high prices for zinc ore the month of September promised to be one of unusual shipments and activity but it closed with a recession to the old levels and with even smaller shipments for the month than the preceding four weeks. The district standing perplexed at a situation that developed in a very unexpected manner finds itself more unsettled than previous to the high ore price level of the last two weeks of August and the first two weeks of September.

Opening at $47 to $49 per ton for high grade zinc blende every mine operator that had a closed down property prepared plans to reopen it. Before the plans could be executed the price of ore started to drop and by the end of the month it had reached practically the old level of $40 to $42 or practically the cost of production for the entire field. Naturally such a vacillating market has disturbed the confidence of both labor and mine operators and a waiting policy has been adopted, but the waiting is tinged with far more hope than it has been during the last ten to twelve months.

Beneath the pessimistic utterances of the moment is a widely-held view that the future of the zinc industry is very bright both for the smelters and for the ore producers. There is considerable impatience for the realization of this promised bettered condition but 95 per cent of the mine operators expect it to come as soon as there is an adjustment of financial and shipping facilities for foreign trade. Everyone is therefore bending their energies to have things ready for a participation in the market at a later period but is sedulously taking care not to further hold back the market by increasing the surplus stocks unduly in the hope of realizing a speculative profit. This is perhaps felt keenly because of the known high stocks of both ore and spelter in this country. The stocks of ore in the Joplin district rose from 12,000 tons at the end of August to 13,800 tons at the end of September in spite of the better demand and the higher prices during the first two weeks of the month. It therefore behooves everyone to forego further tendencies to increase stocks.

Calamine prices were as strong as were

ANTIMONY

blende comparatively at the beginning of the month and retained their strength better. The last week of the month showed a much better price for this class of ore than for blende but the shipments did not increase. The market range for the month was $20 to $28 for 90 per cent zinc.

Shipments of blende ores aggregated 17,938 tons while calamine totaled 1,115 tons. This, with the increase in surplus stocks shows that the production is approximately 20,000 tons of ore per month. It is estimated that with a stable price in excess of $45 base this tonnage would be brought up to 24,000 to 25,000 tons within a period of sixty days.

Lead ore prices were far more steady throughout the month but finally succumbed to the weakness in pig lead and fell off from one to two dollars per ton the last week. The base held fairly steady to $46 the first three weeks but the lowering tendency began to be felt even the third week. The month closed with lead bringing $44 to $45 per ton. Shipments were good all month practically taking all the output weekly. The stocks at the end of the month were 1,450 tons as against 1,500 tons at the beginning of the month.

THE ANTIMONY SITUATION.

The month opened with the market weak and stagnant at 11c for Chinese and Hungarian grade, with traders and consumers realizing how completely they had been carried away in August, in their scramble to buy, on the fears of being shut off of supplies and expected war demand, and on which prices had gone from 5¾c to 17c in a few days.

A steady decline continued all through September with absolutely no demand for the metal, until a nominal price of 8½c for ordinary grades had been reached by the end of the month. There had however been a good demand in England on orders from the British and Russian Government which had stopped any efforts to sell to this market.

But suddenly on October 4th enquiries and orders from England reached this market with the news that England had been buying large quantities of antimony in China and Japan, and that English owned stocks in this market had been ordered shipped back to England, and market suddenly became very excited. Ordinary grades which were offered at 8c to 8½c advanced in two days, Oct. 5 and 6, to 11c and 12½c for Cooksons, and some large orders were placed for October, November and December shipment from China and Japan, the only places where at the moment any metal can be secured from abroad.

It is stated on excellent authority that all three of the English antimony makers are booked up on Government contracts with England and Russia, and will not be able to take on any outside business during the remainder of the year, and the Continental supply is cut off by the war. If this is the situation then the antimony market is in a very strong position, and we may see a repetition of the prices which prevailed in August.

IMPORTS OF ANTIMONY.

Antimony Ore, Metal or Regulus.

(metal contents)

	Quantity	Value
August 1914	1,257,807 lbs	$41,212
August 1913	768,981 lbs	62,663
Eight Months		
Ending Aug. 1914	10,031,198	509,239
Ending Aug. 1913	11,673,666	669,849
Ending Aug. 1912	11,432,269	560,561

IMPORTS OF ALUMINUM.

Aluminum, crude, ingots scrap, etc., but not including manufactures of.

	Quantity	Value
August 1914	1,471,784 lbs	$244,144
August 1913	1,336,835 lbs	256,893
Eight Months		
Ending Aug. 1914	10,559,359	1,743,521
Ending Aug. 1913	18,597,057	3,158,071
Ending Aug. 1912	12,029,888	1,394,089

Manufactures of Aluminum.

	Value
August 1914	$100,303.00
August 1913	84,491.00
Eight Months	
Ending Aug. 1914	1,058,386
Ending Aug. 1913	650,935
Ending Aug. 1912	230,371

ALUMINUM

ALUMINUM, ANTIMONY AND SILVER PRICES IN SEPTEMBER.

	Aluminum	Antimony			Silver	
		Cookson's	Hallett's	Hungarian.	New York.	London.
Day.	Cts.	Cts.	Cts.	Cts.	Cts.	d.
1	20.00	14.00	13.00	11.00	53¼	24
2	20.00	14.00	13.00	11.00	53¼	24
3	20.00	14.00	13.00	11.00	53	24
4	20.00	13.75	12.75	10.75	53	24
5	....	....	....	....	53	24
6						
7	.....	....				24
8	20.00	13.75	12.75	10.75	54⅛	24⅛
9.	20.00	13.75	12.75	10.75	54¼	24
10	19.75	13.00	12.00	10.00	55	25
11	19.75	13.00	12.00	10.00	55⅛	25⅛
12.	....	....	....	....	55	25
13						
14.	19.75	12.00	11.00	10.00	54	24
15.	19.75	12.00	11.00	10.00	52	23⅛
16.	19.25	12.00	11.00	10.00	53⅛	24
17.	19.25	12.00	11.00	10.00	52⅝	24
18.	19.00	11.75	10.75	9.50	51	23⅛
19	.....				51⅛	23⅛
20.	....				....	
21.	18.75	11.00	10.00	9.00	51	23⅛
22.	18.75	11.00	10.00	9.00	52	24
23.	18.50	11.00	10.00	9.00	53	24
24.	18.50	11.00	10.00	9.00	53	24
25.	18.50	10.75	9.75	8.75	53	24
26.	.....	....	....	....	53	24
27.	....	....	....	....	....	
28.	18.50	10.75	9.75	8.75	52	24
29.	18.50	10.75	9.75	8.75	53	24
30.	18.50	10.75	9.75	8.75	52½	24
High	20.50	14.00	13.00	11.00	55	25
Low	18.25	10.50	9.50	8.50	51	23⅞
Av.	19.285	12.19	11.19	9.795	53.269	24.269

ANTIMONY PRICES IN NEW YORK.

Highest, lowest and average price of Cooksons antimony in New York.

1914—	High.	Low	Average
January	7.35	7.25	7.31
February	7.25	7.20	7.24
March	7.25	7.20	7.23
April	7.25	7.15	7.22
May	7.35	7.15	7.29
June	7.35	7.10	7.21
July	7.25	7.00	7.11
August	22.00	7.75	16.23
September	14.00	10.50	12.19

THE ALUMINUM SITUATION.

The market has been dull and stagnant throughout September with gradually weakening prices declining from 20c at the opening of the month to 18½c at the close.

What business that has been done has gone to the leading domestic interest on contracts, the particulars of which are known only between the buyer and seller.

The export of the metal has been prohibited from England, and of course imports from the Continent are very difficult, but as we are not dependent on foreign aluminum in the present unsatisfactory condition of business, our market has not been affected in the slightest.

WORLD'S PRODUCTION AND CONSUMPTION OF ALUMINUM.

The following statistics cover the world's production and consumption of aluminum as issued by the "Metallgesellschaft" figured in metric tons of 2,204.6 pounds:

Production.

	1911.	1912.	1913.
United States	18,000	19,500	22,500
Canada	*2,300	*8,300	*5,900
Germany, Austria-Hungary, Switzerland	8,000	12,000	12,000
France	10,000	13,000	18,000
England	5,000	7,500	7,500
Italy	800	800	800
Norway	900	1,500	1,500
Total	45,000	62,600	68,200

Consumption.

	1911.	1912.	1913.
United States	20,900	29,800	32,800
France	5,000	6,000	7,000
England	3,000	4,000	5,000
Italy	900	1,000	1,000
Germany, Austria-Hungary, Switzerland, Russia and other countries	17,000	22,100	21,000
Total	46,800	62,900	66,800

*Export

NAVY DEPARTMENT SPECIFICATIONS.

The Navy Department through the office of the Naval Inspector of Engineering Material, Philadelphia, have issued new specifications covering copper and spelter as given below:

SLAB ZINC.

GENERAL INSTRUCTIONS.

1 GENERAL INSTRUCTIONS OR SPECIFICATIONS issued shall form part of these specifications.

MATERIAL.

2. Only virgin spelter,—that is, spelter made from ore or similar raw material by a process of reduction and distillation and Not produced from REWORKED metal, shall be furnished for grades A. B. and C.

GRADES.

3. There shall be four grades of spelter conforming to requirements stated below.

CHEMICAL REQUIREMENTS.

4. The chemical requirements shall be as follows:—

Grade.	Zinc Min.	Cadmium Max.	Iron Max.	Lead Max.	Sum of Cadmium Iron & Lead Max.	Other elements. Arsenic, S & B. etc.
A ...	99.85	0.05	0.03	0.07	0.10	None
B	99.35	0.50	0.03	0.20	0.50	None
C	98.60	0.75	0.04	0.75	1.20	None
D ...	98.00	0.75	0.08	1.50	2.00	Traces

Note: 10 grains of sample tested by Marsh test shall not show more than a perceptible spot of arsenic on a cold porcelain furnace.

5. Slabs to be of such size that they can be conveniently handled. A brand shall be cast in each slab by which the maker and grade can be identified.

GENERAL.

6. Bidders shall state in their proposal the brand of zinc offered.

SAMPLING.

7. Samples to be taken as follows: One slab shall be taken from such a location in each lot of 4,000 lbs., or fraction thereof, of any order as to represent as nearly as possible, the average quality of the material. Each slab shall be sawed completely across in both directions. The inspector shall forward to the yard requiring the zinc, or as directed, not less than 5 ounces of the sawdust from each slab in separate packages for analysis. Sawdust from all the samples from an order will be thoroughly mixed, and a portion taken therefrom for analysis. Unless a question of homogeneity of the metal arises, in which case separate analysis of the samples will be made as deemed expedient. If the results of the first analysis of mixed samples are not within the limits prescribed herein, a check analysis will be made. The average of these two analyses will be final except that the order may be rejected if separate analysis of the samples indicate a considerable lack of homogeneity. No resampling will be allowed.

ANALYSIS.

8. For the determination of lead in Grade "A" not less than 25 grams, Grade "B" not less than 15, in Grade "C" not less than 10, and in Grade "D" not less than 5 grams, shall be taken; that is the sample used for analysis should not contain less than 0.01 gram lead.

For the determination of iron the sample should contain not less than 25 grams from Grades "A" "B" and "C" and not less than 10 grams from Grade "D". The entire samples must be dissolved, the iron precipitated as ferric hydroxide, then re-dissolved, reduced, and the iron determined by titration.

For the determination of cadmium, dissolve 25 grams in 330 cc. of a solution of one part of hydrochloric acid (specific gravity 1.2) and 5 parts of water. Let it stand over night; filter and wash; reject filtrate and dissolve the residue, which should be about 5 per cent of the zinc in nitric acid. Add 10 cc. of sulphuric acid; evaporate to fumes; dilute and filter out and wash the lead sulphate. Dilute the solution to 500 cc. add 5 grams of ammonium chloride; pass a slow stream of hydrogen sulphide for one hour and let stand for about 5 hours; filter, wash with hot water, dissolve in 10 cc. of sulphuric acid and 50 cc. of water; filter and wash. Dilute to 400 cc. precipitate with hydrogen sulphide

as before. Weigh as cadmium iodide or dissolve in hydrochloric acid and titrate with potassium ferrocyanide.

PURPOSES FOR WHICH USED.

9. Grade "A" is suitable for the manufacture of cartridge cases and other high grade non-ferrous alloys, including high tensile manganese bronzes. Grade "B" is suitable for non-ferrous alloys where low lead contents is specified, such as medium quality manganese bronze and gun metal, etc. Grade "C" is suitable for non-ferrous alloys where lead contents of 1 to 3 per cent is specified. Grade "D" is suitable only for galvanizing purposes.

PHYSICAL REQUIREMENTS.

10. The slab shall be reasonably free from surface corrosion to adhering foreign matter.

NOTE FOR GENERAL STOREKEEPERS.

11. Grade "A" should not be called for except for special high grade materials as noted above.

SPECIFICATIONS—Where obtainable.

Note: Copies of the above specifications can be obtained upon application to the various Navy Pay Offices or to the Bureau of Supplies and Accounts, Navy Department, Washington, D. C.

INGOT COPPER.

General Instructions.

1. General Instructions on Specifications issued shall form a part of these specifications.

GRADES.

2. There shall be two grades of Ingot Copper conforming to requirements as follows below.

CHEMICAL REQUIREMENTS.

3. The chemical requirements shall be as follows:—

Grade.	Cu. Min	Bi. Max.	Sb. Max.	As. Max.	S. Max.	Material.
No. 1..	99.90	none	none	0.0025	0.0025	Only high grade Lake Copper from ore of the best quality or electrolytic copper from ore of the best quality.
No. 2 .	99.75	0.01	0.01	0.05	0.01	Copper for this grade may be refined from the ore or reclaimed from scrap.

Note: Copper to be determined by electrolytic assay, silver being counted as copper. Not less than 5 grams shall be taken for analysis.

PURPOSE FOR WHICH USED.

4. Grade No. 1 to be used in the manufacture of cartridge cases and high grade bronzes and brasses. Grade No. 2 for ordinary foundry purposes in compositions of commercial brass (B-c) cast naval brass (N-c) screw pipe fittings (S-c) and commercial rolled brass (B-r), and other compositions in which great strength is not required.

SAMPLING.

5. Samples are to be taken as follows: One ingot shall be taken from each location in each lot of 8,000 lbs. or fraction thereof, of an order, as to represent as nearly as possible the average quality of the metal. Two 9-16 inch holes shall be drilled from the top to ¼ inch from the bottom of each ingot. The drillings from the first ¼ inch shall be discarded and the inspector shall forward to the yard requiring the copper, or as directed, not less than five ounces of the remaining drillings from each ingot in separate packages for analysis. Drillings from all the samples from an order will be thoroughly mixed and a portion taken therefrom for analysis, unless a question of homegeneity of the metal arises, in which case separate analyses shall be made as may be deemed expedient. If the results of the first analysis of mixed samples are not within the limits prescribed herein a check analysis will be made. The average of these two analyses will be final, except that the order may be rejected if separate analysis of the sample indicate a considerable lack of homogeneity. No resampling will be allowed.

FORM AND MARKING.

6. To be furnished in standard commercial shaped ingots, between 9 and 12 inches in length, with brand name cast or stamped in.

GENERAL.

7. Bidders will state in their proposals the brand of copper offered.

SPECIFICATIONS—Where obtainable.

Note: Copies of the above specifications can be obtained by application to the various Navy Pay Offices or to the Bureau of Supplies and Accounts, Navy Department, Washington, D. C.

COMPARISON OF METAL PRICES.

Pig Iron.	Range for 1912. High	Low.	Range for 1913. High.	Low	Range for 1914. High.	Low.	Closing Sept. 30.
[illegible] Valley	15.25	14.00	15.25	14.25	14.25	14.00	14.00
Basic, valley	16.50	12.25	16.50	12.50	13.25	12.50	13.00
No. 2 foundry, valley	18.00	13.00	17.50	13.00	13.25	13.00	13.00
No. 2X foundry, Philadelphia	18.50	14.75	18.50	14.50	15.00	14.25	14.45
No. 2 foundry, Cleveland	17.75	13.25	17.75	13.50	14.25	13.25	13.75
No. 2X foundry, Buffalo	17.25	13.50	18.00	13.00	17.75	12.50	13.25
No. 2 foundry, Chicago	18.00	14.50	18.00	14.00	14.75	13.50	13.50
No. 2 Southern, Birmingham	14.00	9.75	14.00	10.50	10.75	10.00	10.00
Scrap Iron and Steel.							
Melting steel, Pittsburgh	16.25	12.50	15.00	10.75	12.00	11.00	11.25
Heavy melting steel, Chicago	14.00	10.75	13.25	9.00	11.00	9.00	9.00
No. 1 R.R. wrought, Pittsburgh	16.25	13.00	15.75	11.50	12.75	10.25	10.25
No. 1 cast, Pittsburgh	15.25	12.35	15.00	11.50	12.25	11.25	11.25
Heavy steel scrap, Philadelphia	17.00	11.75	14.75	9.75	11.25	9.75	10.62
Iron and Steel Products.							
Bessemer rails, mill	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Iron bars, Pittsburgh	1.65	1.25	1.65	1.35	1.35	1.25	1.25
Iron bars, Philadelphia	1.65	1.22½	1.67½	1.22½	1.27½	1.17½	1.17½
Steel bars, Pittsburgh	1.40	1.10	1.40	1.20	1.20	1.10	1.15
Tank plates, Pittsburgh	1.50	1.10	1.50	1.20	1.20	1.10	1.15
Structural shapes, Pittsburgh	1.50	1.10	1.50	1.20	1.25	1.10	1.20
Grooved steel skelp, Pittsburgh	1.45	1.15	1.45	1.15	1.20	1.15	1.15
Black sheets, Pittsburgh	2.25	1.80	2.35	1.80	2.00	1.80	1.95
Galvanized sheets, Pittsburgh	3.40	2.80	3.50	2.80	3.00	2.75	2.90
Tin plate, Pittsburgh	3.60	3.30	3.60	3.40	3.60	3.25	3.25
Cut nails, Pittsburgh	1.70	1.50	1.70	1.60	1.60	1.55	1.55
Wire nails, Pittsburgh	1.75	1.55	1.80	1.50	1.60	1.50	1.60
Spikes, Pittsburgh	79%	80%	79%	80%	79½%	80%	80%
Connellsville Coke at ovens.							
Prompt furnace	4.25	1.80	4.25	1.75	2.00	1.65	1.65
Prompt foundry	4.50	1.90	4.50	2.40	2.50	2.25	2.25
Metals—New York.							
Straits tin	51.05	42.05	50.70	36.75	65.00	30.00	31.00
Lake copper	17.80	14.15	17.00	14.50	15.50	12.00	12.12½
Electrolytic copper	17.75	13.95	16.87½	14.12½	14.87½	11.70	11.75
Casting copper	17.65	13.75	16.62½	13.87½	14.65	11.60	11.65
Sheet copper	23.00	19.00	22.00	19.75	20.25	17.00	17.00
Lead (Trust price)	5.10	4.00	4.75	4.00	4.15	3.75	3.75
Spelter	7.65	6.45	5.65	5.10	6.20	4.90	4.12½
Cooksons antimony	10.50	7.12	9.00	7.25	22.00	7.00	10.75
Aluminum 98-99%	28.00	18.50	27.12½	18.50	21.50	17.37½	18.50
Nickel	64	54¼	62	56	59½	51⅛	52¾
St. Louis.							
Lead	5.02½	3.90	4.72½	3.85	4.10	3.55	3.55
Spelter	7.50	6.25	5.85	4.95	6.00	4.70	4.95
Sheet zinc (f.o.b. smelter)	9.00	8.00	9.00	7.00	8.50	7.00	8.50
London.	£	£	£	£	£	£	£
Standard tin, spot	200	180	202	166	188	132	*132
Standard tin, three months	80	60	77	61¼	66¼	56	*56
Copper	96¼	75	94	75	205	78	*184¼
Lead	27	23	26¼	20	21¼	21	*21¼
Spelter	26	25 10s	25 5s	25 10s	27 5s	25 5s	24s

* Closing July 31st.

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THE BUSINESS SITUATION.

Although three months have elapsed since the outbreak of War in Europe, the business and political world finds itself as much in the dark as to what its developments and effects are to be as at anytime. As almost every prediction has been falsified, there is now little disposition to forecast the future, but simply to patiently and hopefully await what is to come, meanwhile taking every precaution against possible eventualities as far as they can be foreseen by the daily developments that arise, and facing manfully and courageously the duties and obligations created.

Prospect for a Long War.

The war gives no promise of early termination but rather the prospect of the addition of new combatants, and a fight to a finish as to whether democracy or autocracy shall rule the destinies of Europe, and in some respects the entire civilized world. Of the final outcome we have no doubt, but it will be a hard struggle, and those who are placing their reliance on the early exhaustion of either side, are we think far astray in their reasoning. In order that American business men may save time and patience, we must adjust ourselves to that conclusion

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Present Calm in Finances and Business Result of Control.

Furthermore, we should not permit ourselves to be deceived by the surface exhibition of calm in business and finances.

It is the result of an artificial state caused by the unprecedented steps that have been taken of closing the exchanges, and stopping the free action of trading, prices and speculation. The governments at war, and to a large extent the governments at peace have been forced to assume a control over business and finances almost as effective and profound as their control over their armies in the field. The calm is the result of War measures. For the present, business and finance, debtor and creditor, have no rights in the great commercial nations at war, except those that the government permit them to exercise.

Representatives of Business Side at the Council Boards.

But there is no complaint, as these governments have called to their council boards the leading representatives of business and finance. Perfect harmony exists, and we find the political and business interests working together as a unit in the face of a great emergency. To some extent, it is the same with us, certainly as regards finances. Just when a crisis had been reached that threatened a complete break between the business and political interests of our country, the perils of war have restored peace—Washington has recognized how dependent the country is on the council and co-operation of those interests which it was the fashion to hound and abuse when no danger was in sight.

Situation Being Splendidly Handled.

[illegible] appreciates how remarkably the situation has been handled the world over, the extraordinary dangers that have been avoided and overcome, and those that still exist and confront the world. But the skill and courage our Captains of Industry have showed, has been of a higher order than anything from those who have directed the armies, since they directed greater economic forces, and more complex dangers, threatening greater ruin and destruction, and it gives us confidence that should greater dangers arise they will be successfully overcome.

Progress Being Made.

The progress made as regards ourselves in the campaign, is summed up this week by our largest Bank in the following sentence:

"Affairs in this country are moving in an orderly manner toward recovery. The banks in the central cities have restored their legal reserves, money is easier, fears of a financial crisis have disappeared, the foreign trade situation is better; a pool to lend money on cotton has been agreed upon and the new banking system is nearer to doing business."

The Election has Encouraged Business.

Also the result of the election has heartened the business world, and is an assurance that business interests do not stand alone, and that the common sense of the public can be depended on to express itself fairly when it gets an opportunity.

We have troubles enough before us, but the past election demonstrates our burden will not be increased by doctrinaire experiments on the business world for sometime to come, and that the business man and institutions are now recognized as valuable assets to

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the country, and therefore should be fairly dealt with and consulted.

Our Duty.

There are two great duties before us as a nation:

1st. To keep ourselves from being drawn into the entanglement of the war, at the same time not compromising our sense of right and wrong in our private opinions and sympathies.

2nd. In a careful handling of our business affairs, to avoid over confidence in our security from danger, and to show patience in awaiting the benefits that our resources and position are certain to give us before this war is many months older. Only as each one whose position gives him influence correctly adjusts his individual views and actions to what the situation demands, will the sum total of our conduct be powerful and successful.

It is a time "to play safe," at the same time to keep an abounding confidence in our country and ourselves.

The past three months has taught us how dependent our prosperity is on the peace and prosperity of our neighbors. The future is to show how important our country is as a moral and commercial force in the affairs of the world, and we believe when the time comes to assert it we will not be found wanting. This war is to be a new birth to American influence and opportunity. Not only American goods, but American ideals are to play a greater part in the world than they have in the past.

A WORD OF COUNSEL.

Do you, as an individual, want to help business recover? Then reflect that the greatest trouble we have had is a panic in the minds of men, because they do not know what the effect of the great war will be, and therefore fear everything. Panic is unreasoning fear. At this time, therefore, every [illegible] great deal [illegible] will [illegible] business men can help improve the mental attitude.

The [illegible] suggestion we wish to give in this connection is: Don't ask everyone you meet, "How long do you think the war will last?" It suggests to him, and confirms you in the view, that we have to wait, that we can do nothing meanwhile.

Ask him instead: "What can we do during the war? That is what we should be thinking of. We should never devote our energies to waiting; we should endeavor to do what we can each day and hour.

THE STEEL SUIT.

Almost exactly three years after the bringing of the government suit against the United States Steel Corporation, October 26, 1911, the case actually comes before the judges for decision. The testimony and briefs being submitted to the Circuit Court of Appeals, Philadelphia, Judges Buffington, McPherson and Wooly sitting, and the oral arguments began Tuesday, October 20. In case of disagreement between the judges, or in case ground can be found by either party for an appeal, the case will then go to the Supreme Court.

The case has been well worked out. No one can assert, when the decision has been made, that it has been on insufficient information. The doubt is entirely extraneous to the case itself. There can be no serious dispute as to why the original combines were formed, or the United States Steel Corporation itself. There can be very little dispute as to the nature and intent of the practices, either of the managements of the original combines or of the Steel Corporation. As to the effects of the conditions arising through the formation and existence of the Steel Corporation there is less doubt now than there was when the suit was brought three years ago.

We may review these points briefly. Most of the original combines were formed for the purpose of eliminating or greatly reducing a competition that had proved exceedingly severe, and the conduct of these combines, during their brief existence, clearly disclosed a desire to make as much money as possible [illegible] the conditions

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that were in restraint of trade, as for instance that certain machinery builders should not make machinery for competitors, but there were relatively very few of these. When the Steel Corporation was formed, there were two principal motives: (1) To further, not restrain, trade, by introducing economies, building up export business, etc., these objects being very important and promising great benefits to the people; (2) To forestall a threatened duplication of manufacturing facilities which promised ruinous and destructive competition, such as would in all probability have been extremely harmful to the country. The conduct of the Steel Corporation management was distinctly different from that of the individual combines. There were occasional questionable practices, growing smaller year by year until several years ago they practically disappeared. The Hill ore lease, decidedly questionable from most viewpoints, was removed from the case, the notice to abrogate it being formally given a few hours before the steel suit was filed (on the morning of October 26, 1911, while the suit was filed shortly after 3 P.M. on that day) and through the terms of the lease this notice results in its final termination, in all respects, on December 31 next.

As to the results of the Corporation's existence there is room for some question, not a great deal, but more doubt than exists in the one direction as to the motives of the formers and managers of the original consolidations and in the other direction as to the motives of the formation and subsequent conduct of the Steel Corporation itself. This measurable doubt arises from the fact that it is impossible to imagine precisely what would have occurred if the corporation had not been formed, and impossible to make desirable comparisons between conditions before and after. The general supplanting of wrought iron by steel did not occur until the early nineties, and there was a severe industrial depression from 1893 to 1898, while the Steel Corporation was formed April 1, 1901. Thus there was less than ten years of experience of steel conditions before the corporation was formed, more than half of the time be- [illegible] depression, while everyone will readily admit that the ten years following, to the time of bringing the suit, constituted a period of great general prosperity. If steel prices were higher for ten years after than for ten years before the Steel Corporation was formed it by no means follows that the formation or conduct of the Steel Corporation was the cause. There were fundamental differences in conditions, as to the general state of prosperity, the wages paid, the character of the ores worked, etc., and there were improvements in machinery and processes and great increases in the amount of capital investment required per unit of output. Thus there is room for some doubt as to what were the practical effects upon the steel industry of the formation and conduct of the Steel Corporation. Accordiig to the common principle underlying law, the benefit of any such doubts should inure to the defense rather than to the prosecution. Close analysis, particularly if carried up to the present date, suggests that the balance of the evidence is rather in favor of the defense.

All these things are relatively clear, but they do not in themselves make the legal aspect of the case clear. elsewhere we present in full what is given as an authoritative summary of "the argument" in the Steel Corporation's brief, the brief itself being in two parts, some 500 pages of a statement of the case, based on the testimony, and some 250 pages of an argument. From this summary it may readily be observed that the defense is divided substantially into two parts, the one relating to the prior consolidations, the other to the Steel Corporation itself. The one is brief, the other extensive. The prior consolidations, tin plate, sheet, wire, etc., were investigated by a commission appointed by Congress in 1898, this investigation lasting to the summer of 1901, and nothing came of the investigation. Our own recollection is that the commission could not decide that the formation of these prior consolidations was illegal, because there was the Knight sugar decision, holding that a consolidation, by outright purchase, of competing manufacturing properties was not illegal. That was the decision which Mr. Roosevelt so freely criticized, and we take it that more recent de-

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[illegible] investigation [illegible] of the Steel Corporation, have reversed it. If the Court should now hold that the law, as developed by the Knight decision, prevailed during a period starting before the formation of these prior consolidations and lasting until long after the Steel Corporation itself was formed, it would seem that the prior consolidations could not now well be split up.

The other portion of the Steel Corporation's defense, much more extensive, relates to the Steel Corporation's formation and conduct. While much is said of the intent and purpose of those who formed the corporation, it is obvious that what actually has happened during more than 13 years is of much more compelling significance. One cannot be certain what was in the minds of those men, but one can be certain of what did occur. What occurred was an almost constant diminution in the proportion of steel which the corporation contributed to the country's total output, a flourishing of the independent producers, general satisfaction on the part of buyers, a great improvement in the condition of workmen and the development of an important export trade.

We may point out that there is room for argument whether the percentages of output stated should be regarded as altogether fitting the circumstances. The important statement is that the corporation's proportion of the total production of finished iron and steel products was 50.1 per cent in 1901 and 45.7 per cent in 1911. It might be suggested that while the proportion was 45.7 per cent in 1911 it was 48.5 per cent in 1912, or considerably higher, while 1911 was an off year and 1912 a fairly big year. Thus it might be argued that the corporation evinced a disposition to hold the umbrella in 1911, but disclosed its real strengtth in 1912. It might also be argued that these percentages refer to rolled iron and steel combined, while the corporation made little rolled iron in 1901 and practically none in 1912. The percentages, if computed from rolled steel alone, would be considerably higher. For 1912 the Steel Corporation's percentage, for rolled steel only, would be 52.0 per cent instead of the 48.5 per cent rolled iron and steel in that year, or the 45.7 per cent of rolled iron and steel in 1911. By any method of computation, however, the Corporation's proportion would be shown to have decreased somewhat. Figured as to the domestic market only there would be shown a large decrease, since the exports were light in 1901, and much heavier in 1912.

UNITED STATES CONTRIBUTION TO WORLD PIG IRON OUTPUT.

Until 1902 the United States constantly increased its proportion of pig iron production, by comparison with the world at large. In very early years the United States was ahead of Germany, except that in 1875 Germany made slightly more pig iron than the United States. In 1890 we passed Great Britain, and maintained the lead, except for the years 1894 and 1896.

In 1902 we produced approximately 41.6 per cent of the world's pig iron, but since that time we have barely been maintaining that proportion, and certainly have not improved upon it, the reason being that Germany increased its production very rapidly, while France and some other countries made large gains. Our lead over Germany became most marked in 1902, as in that year we made 17,821,307 gross tons of pig iron against 8,529,899 metric tons (2,204.6 pounds) for Germany and Luxemburg, and in a few subsequent years we did as well, practically doubling the German production. While British production has remained almost stationary, the minor producing countries have made gains, so that we have not measurably improved on the proportion of 41.6 per cent of the world's production, made in 1902, our average in the past two years being approximately 41 per cent.

The world's pig iron production has doubled in 14 or 15 years, since the 1913 production was about 76,000,000 tons, while the production in 1899 was slightly more than half of this and the production in 1898 was slightly less than half. The previous doubling had occurred in approximately the same length of time. Up to 1907 the production of the United States doubled once every ten years, on an average, but since then the increase has been less rapid, and the rule has probably broken down.

BUSINESS TRENDS.

COMMODITY PRICES.

The index number compiled by Bradstreet's for October works out at $9.2416. This, as has been seen, is substantially lower than either of the two preceding index numbers, but it is, nevertheless, 6.1 per cent higher than that registered on August 1st last. In short, the price curve continues above all but the highest of recent years, though it shows an advance of only nine-tenths of one per cent over the index number for October 1, 1913, while it reflects a drop of 2.2 per cent from that date in 1912, when prices were extraordinarily high for a time of peace. Thus, the current level is, with the exception just noted, the highest ever recorded for October 1st.

The following table gives "Bradstreets" index numbers (the totals of the prices per lb. of ninety-six articles, since Jan. 1, 1909:

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	8.263	9.231	8.836	8.949	9.493	8.885
Feb.	8.302	9.073	8.766	8.958	9.459	8.861
Mar.	8.217	9.111	8.603	8.902	9.405	8.832
Apr.	8.316	9.200	8.522	9.098	9.297	8.756
May	8.302	9.039	8.458	9.270	9.139	8.622
June	8.396	8.911	8.529	9.102	9.072	8.622
July	8.457	8.925	8.594	9.112	8.952	8.656
Aug.	8.504	8.822	8.657	9.159	9.011	8.708
Sep.	8.591	8.952	8.819	9.215	9.100	9.757
Oct.	8.748	8.927	8.806	9.451	9.152	9.241
Nov.	8.964	8.877	8.892	9.478	9.225	
Dec.	9.126	8.784	8.982	9.546	9.239	
Year	8.515	8.989	8.713	9.186	9.211	

OUR FOREIGN TRADE.

September:	1914.	1913.
Exports	156,188,790	218,240,001
Imports	139,204,267	171,084,843
Excess of exports	16,984,523	47,155,158
Nine months:		
Exports	1,467,538,446	1,733,422,158
Imports	1,409,565,530	1,327,385,071
Excess of exports	57,972,916	406,037,087

The Journal of Commerce, (N. Y.) figures November dividend and interest payments will be $129,990,791, or $7,851,421 less than November a year ago.

IDLE RAILWAY CARS.

According to the report of the American Railway Association the total of idle railway cars in the country on October 15th was 151,082, an increase of 20,055 cars compared with the previous statement.

The net surpluses on various dates since January 1st, 1914, are compared in the following table:

Oct. 15	151,082	May 15	238,642
Oct. 1	131,027	May 1	228,879
Sep. 15	136,049	Apr. 15	212,869
Sep. 1	163,326	Apr. 1	139,518
Aug. 15	172,145	Mar. 15	‡124,518
Aug. 1	196,665	Mar. 1	153,907
July 15	226,541	Feb. 15	197,052
July 1	219,545	Feb. 1	209,678
June 15	232,334	Jan. 15	214,889
June 1 ....†	242,572	Jan. 1	188,850

BUILDING OPERATIONS.

The following is Bradstreet's record of building expenditures at leading American cities reporting monthly, quarterly and yearly from July, 1912, down to and including September, 1914, shows the ebb and flow in the building industry as follows:

	Cities.	1912.	1913.	
July	145	75,501,375	87,580,278	D. 13.7
Aug.	146	63,720,880	83,462,183	D. 23.6
Sep.	143	76,720,050	68,680,476	I. 11.7
3d quarter		215,942,305	239,722,967	D. 10.0
9 months.		679,129,151	714,476,512	D. 5.0
Oct.	144	63,035,385	73,128,886	D. 13.8
Nov.	145	50,405,703	71,176,911	D. 29.1
Dec.	146	67,409,818	72,180,455	D. 6.6
4th quarter		180,847,906	216,486,252	D. 16.4
Year		859,977,057	930,962,764	D. 7.6

		1914.	1913.	
Jan.	146	45,999,862	55,514,979	D. 17.1
Feb.	148	51,376,112	62,784,999	D. 18.1
Mar.	150	85,610,997	83,388,638	I. 2.6
1st quarter		181,986,971	201,688,616	D. 9.7
Apr.	150	83,364,426	97,405,899	D. 14.4
May	146	82,761,751	86,809,963	D. 4.6
June	150	85,532,913	82,999,953	I. 3.0
2d quarter		251,659,090	267,215,847	D. 5.8
July	152	82,857,507	78,786,703	I. 5.1
Aug.	152	62,976,175	65,703,443	D. 4.0
Sep.	157	48,154,002	73,272,194	D. 34.2
3d quarter		193,987,684	217,762,340	D. 10.9

GOVERNMENT BRIEF IN STEEL SUIT.

Plan Outlined for Dissolution: Independent Ownerships with no Stockholders in Common.

The government's brief in the Steel suit, comprising two printed volumes, octavo, 145 pages in Part I and 406 pages in Part II was prepared by Judge J. M. Dickinson and Henry E. Colton, special assistants to the attorney general in the suit. It was filed just prior to the beginning of the oral arguments, which began October 20th in the Circuit Court of Appeals, Philadelphia. A brief resume of the brief is given below:

The proposed plan of dissolution is that the Steel Corporation control of its subsidiaries be terminated and that then the subsidiaries themselves be split up, whereby separate companies would be formed, with no directors or stockholders in common, no such company to own works producing more than a certain percentage of the country's total output, 10 per cent being suggested as the limit, and the years 1912 or 1913 being suggested for the statistical basis. Roughly speaking, we take it such a procedure would result in the formation of five or six tin plate companies, five or six wire companies, about four sheet companies, four or five pipe companies, and so on. The court would come to a dead halt when it came to rails, as the Gary plant alone makes more than 10 per cent of the country's rails. The important part of the plea for dissolution is quoted below:

"That the ownership and control by the Corporation of the Carnegie Steel Company of New Jersey, the Federal Steel Company, the American Steel & Wire Company of New Jersey, the National Tube Company, the American Sheet & Tin Plate Company, the American Bridge Company, the Shelby Steel Tube Company, the Lake Superior Consolidated Iron Mines, the Pittsburgh Steamship Company, the Union Steel Company, the Clairton Steel Company, and the Tennessee Coal, Iron & Railroad Company, are as to each of said companies an unlawful combination in restraint of trade;

"That the Carnegie Steel Company of New Jersey, the Federal Steel Company, the American Steel & Wire Company of New Jersey, the National Tube Company, the American Sheet & Tin Plate Company, the American Bridge Company, and the Shelby Steel Tube Company, are each an unlawful combination in restraint of trade;

"That the Carnegie Steel Company of New Jersey, which combined under one control the Carnegie Company of New Jersey, the National Steel and the American Steel Hoop, the American Sheet & Tin Plate Company, which combined in one corporation the American Tin Plate Company and the American Sheet Steel Company, the Federal Steel Company, the American Steel & Wire, the National Tube, the Shelby Steel Tube and the American Bridge, be divided under wholly independent ownerships, with no stockholders in common, so that no person or company shall own or control works whose production, as shown by recent previous years (1912 or 1913 being suggested), in any of the principal iron or steel products, exceeded a percentage to be fixed by the court (10 per cent being suggested as a maximum), of the entire production of same for the United States for said year;

"That the Duluth & Iron Range Railroad Company and the Duluth, Missabe & Northwestern Railroad Company be made independent, not only of each other, but of any concern or corporation taking over any of the properties of the Corporation;

"That those concerns that shall come severally into control of the properties of the Corporation be enjoined from in any way combining or selling their products through the United States Steel Products Company or any common agency, and from having directors in common;

"That the Tennessee Coal, Iron & Railroad Company, the Union and the Clairton, each be made entirely independent of the control of any persons or company which shall come into control of any of said subdivisions, and without any stockholders in common;

"That the ore and coal properties of the Corporation, other than those of the Tennessee, be divided among the Clairton, the Union and the new concerns created, in proportion to their capacity for the production of steel;

"That the Great Northern lease is un-

[illegible] be cancelled.

"That Andrew Carnegie was a party to the unlawful combination of properties through the Corporation, and took the bonds of the Corporation with all the infirmities attaching to such participation;

"That the said several defendant corporations shown to be subsidiaries of the Corporation be enjoined from declaring or paying any dividends to said Corporation or to any person or corporation for its use;

"That the defendants and each and every one of them, and the officers, directors, stockholders and agents of the defendant corporations and of each and every one of them, be perpetually enjoined from doing any act in pursuance of or for the purpose of carrying out any of said unlawful combinations;

"That a receiver be appointed to take over all of the properties owned or controlled by the Corporation and its said subsidiaries for the purpose of making effective the decree and orders of the court, and that such receiver be authorized and directed to take steps to recover for the use of the Corporation from the syndicate subscribers and promoters, and others who were parties to said unlawful combinations, the difference between the par value of the stock received by them severally, and the given therefor, and this in order that restitution so far as possible, may be made to the other stockholders;

"That costs be awarded against each of the defendants other than J. H. Gruber, and

"That jurisdiction be retained of the cause for fully effectuating the decree of the court."

Review of What Occurred.

Part I of the brief is devoted chiefly to a review of the formation of the prior consolidations, their conduct, the formation of the Steel Corporation and the power thereby alleged to be acquired to restrain trade. An illustration of the method of treatment as to the prior consolidations is furnished by the following extracts, referring to the tin plate consolidation:

"The defendants did not attempt to disprove the evidence introduced by the government that prior to and when the Tin Plate company was formed, the concerns acquired by it were keen and active competitors of one another in interstate commerce in tin plate and kindred products. On the contrary, an effort was made upon the cross-examination of government witnesses, to prove the allegation of the answer, that before and at the time of the organization of the Tin Plate company there existed a destructive competition between the concerns so acquired which had reduced many almost to insolvency."

Referring to alleged over-capitalization, the brief says:

"The excessive over-capitalization of the American Tin Plate Company is indicative of the unlawful purpose of the organizers and the abnormal character of the consolidation. Of the $46,000,000 of capital stock issued, the petition charges that $10,000,000 of the common stock went to the organizers. The answer admits that $10,000,000 of the common stock went to the 'organizers or underwriters'."

Rail Pools.

Various rail pools or agreements are reviewed at length. While the defense took the ground that much of the competition prior to the Steel Corporation's formation was "destructive competition" the government maintains that the competition was destructive of the abnormal and excessive profits that had been exacted. The rail agreement that followed the fierce competition of 1898 is thus referred to:

"The purpose, judged by the natural effect of the arrangement to divide proceeds among those involved in the combination and by concerted action to maintain prices, except as against the competition of competitors in the east not parties to the pool, was to work injury to the public by unlawful maintenance of prices and injury to competitors by taking business at cut prices by concerted action, the loss sustained by the member of the combination who took the business from the outsider at a cut price being made up by a division of the proceeds. The most prominent persons concerned in this unlawful arrangement were Carnegie, Gary, Frick, H. H. Porter and Schwab."

Judge Gary Attacked.

When the Steel suit was brought Judge Gary, chairman of the corporation, gave out an interview stating that he took the suit personally to himself, that he had always firmly believed the corporation to be legal, and therefore must regard the suit as an attack upon himself personally. It was a case of "the worst is yet to come" for in the

government brief Judge Gary [illegible] assailed and his testimony [illegible] ness attacked in the most vigorous language. s may be illustrated by the following brief xtracts: "Gary attempted, as usual, to explain the plain meaning of the language." For Gary to profess entire ignorance . . . is to proclaim himself as about he most ignorant man then in the steel usiness." "The Cimmerian darkness in which he moved in respect to matters of uch common knowledge seems nothing hort of willful blindness." As to the Carnegie threat to build a tube plant at Conneaut, "He could not recollect one of the most notorious and momentous things that ever occurred in the steel business."

Various Acquisitions.

Much attention is devoted to the various acquisitions made by the Steel Corporation from time to time after its formation. The Shelby Steel Tube Company acquisition is declared to have represented the absorption by the corporation of its most important competitor in the seamless tube business, thereby suppressing competition and giving additional evidence of "its continuing purpose to violate the law". As to the Troy Steel Products Company acquisition it is declared to be "practically certain" that the corporation bought the plant to prevent it from going into the manufacture of pipe, the Troy company being connected with Standard Oil interests, thus representing a large consumer. The Clairton Steel absorption is declared to have been another step to suppress competition.

The Hill ore lease is of course asserted to have been for the purpose of forestalling competition and to increase the monopolistic power the corporation already enjoyed in the Lake Superior district.

The review of the Tennessee company absorption is particularly lengthy. It is asserted that various statements of Messrs. Gary and Frick in this connection were misleading, including the statement that Moore & Schley held a majority of the securities of that company. It is asserted that important facts were withheld from President Roosevelt on the occasion of the memorable early morning interview at the White House.

The Gary Dinners.

The Gary dinner movement is naturally referred to at much length. The brief says "Preposterous as maintaining boom prices in a period of depression may seem, such is the fact." The present reviewer cannot refrain from remarking that whatever the bearing may be, the commercial fact is beyond question that as the minds of steel producers were constituted, it was much more feasible to attempt to maintain those relatively high prices, than to maintain much lower prices. It was because any break would probably have meant a very great drop that the movement succeeded. It is denied that the real purpose of the movement was to protect jobbers and manufacturing consumers, and it is likewise asserted that price reductions, accompanied by wage reductions, would have been better for the workmen. An extract relative to these matters is given below:

"The Gary dinners, the subcommittees appointed in connection therewith, and the meeting of manufacturers under their auspices controlled and maintained prices of the leading steel products manufactured by the subsidiaries of the Corporation for long periods at a time under the directing influence of the Corporation, which not only dictated the prices to be charged by its subsidiaries, which controlled more than a majority of the production in most of said products, but constantly and directly brought about concerted action by many of its competitors.

"Prices which the Steel Corporation and the other manufacturers sought to maintain by concerted action through the Gary dinner movement, and succeeded in maintaining to a large extent during the period from November, 1907, to February 18, 1909, were boom prices. Preposterous as maintaining boom prices in a period of depression may seem, such is the fact.

"The real purpose of the maintenance of these relatively high prices during the period from November, 1907, to February 18, 1909, was not to protect the jobbers and customer manufacturers in respect to stocks on hand, but to prevent competition and maintain prices. The movement was continued after the stocks had been disposed of, and was a part of the constantly pursued plan of artificially controlling prices.

"The effect of the radical reductions in prices of steel products, especially the heavier steel products, such as those manufactured by the Carnegie, was to greatly stimulate business and increase production in

said products; and its effect during the brief periods for which the Carnegie Steel Company kept in effect its relatively low prices, to wit, from February 19, to May 19, 1909, was to give the Corporation the lion share of the business. From May 7 on until November 11, 1909, the Carnegie Steel Company kept advancing its prices until they reached approximately those which prevailed prior to the declaration of the open market. This gave the other manufacturers a chance to get their share of the business, with the result that the production for 1909, both for the subsidiaries of the Corporation and for the other manufacturers of steel was greatly increased over that of 1908.

"The Gary movement of maintaining high prices during 1908, accompanied, as it naturally was, with a low percentage of production, cannot be defended on the ground that it conferred benefit upon labor, for the effect of the low percentage of production in 1908 was far more disastrous as regards the workmen than any reasonable reduction in wages would have been. They were not willing to keep up production and lower the standard of prices, but preferred to cut production and maintain prices.

"The Corporation has controlled and generally fixed prices which its subsidiaries were to charge for steel products, although occasionally, such as during the open market of 1909, it has doubtless given the officers of the subsidiary companies some discretion in respect to prices."

STEEL CORPORATION BRIEF.

Official Summary of Brief Before Circuit Court of Appeals, Philadelphia.

The brief for the United States Steel Corporation in the suit of the Government against it is in two parts; the first volume containing the Statement of the Case, the second volume containing the Argument. The Statement of the Case is an impartial epitome of all the material portions of the pleadings and the testimony. It reduces to some 500 pages the 15,000 pages of testimony and exhibits which comprise the full record in the case. The Argument, covering some 250 pages, contains the presentation of the case on behalf of the Corporation.

The Argument may fairly be summarized [illegible]

The law is reviewed briefly as it has been established by the decisions of the United States Supreme Court, especially in the *Standard Oil* and *Tobacco* cases. The most concise statement of the law, as interpreted by counsel for the Government, is found in a portion of the opinion of Mr. Justice Holmes in *Nash v. The United States*, where he says of the *Standard Oil* and *Tobacco* cases:

"Those cases may be taken to have established that only such contracts and combinations are within the Act as, by reason of intent or the inherent nature of the contemplated acts, prejudice the public interests by unduly restricting competition or unduly obstructing the course of trade."

Applying the law, as thus interpreted, to the facts of this case, counsel for the Corporation find their first question to be whether the direct and necessary effect of the organization of the Steel Corporation was to restrain trade or to create a monopoly, as those terms are used in the Anti-Trust Act. They find the answer to this question to depend upon whether the amount of competition suppressed was so great or the percentage of business so large as in and of itself to constitute monopoly or restraint of trade independent of any question of intent.

Competition Between Corporation Units.

As to the extent of the competition suppressed by the formation of the Steel Corporation from a number of previously independent companies, it appears that neither the American Steel & Wire Company, nor the National Tube Company, nor the American Bridge Company, nor the American Tin Plate Company, nor the American Steel Hoop Company, nor the American Sheet Steel Company were in competition to any substantial extent with any of the other companies taken over. It also appears that the products of the National Steel Company went chiefly to its allied companies, the American Tin Plate, American Sheet Steel and American Steel Hoop companies, and that what competition actually existed was confined for the most part to the Carnegie Steel Company and the Federal Steel Company, and as to those companies covered only a portion of their products. Both companies did sell large tonnages of rails and

some other products, but there were many important products of Carnegie which Federal did not make at all and others of which it made no substantial quantity. Likewise, Carnegie did not make one of the most important products of Federal. Even as to the products common to both companies the competition was greatly limited by the location of their respective mills and the boundaries of the territory in which they could economically sell their products.

Corporation Control Decreased.

As to the extent of control of the business acquired by the Corporation, it is shown that the Steel Corporation's proportion of the country's total production of all finished products of iron and steel in 1901 was only 50.1%; that it has since been reduced to 45.7% of the country's production for all the markets of the world and to 40.9% of the total production for the domestic market.

As to the extent of control of the business involved in the ore supply acquired by the Corporation, it is shown that the Steel Corporation's ore constituted only 43% of the total amount of ore in the ranges of the Lake Superior District which were known in 1901, and constitutes at present only 36% of the ore contained in the Lake Superior ranges now known. It also appears that of the total ores available for American iron and steel manufacture the ores of the Lake Superior District constitute a small fraction.

These defendants contend that manifestly it cannot in reason be said that the combination of manufacturing concerns, whose competition did not exceed that above shown, whose percentage of the production did not exceed 50.1% and whose acquisition of a raw material supply did not exceed its reasonable requirements and did not approach to a monopoly, necessarily operated to restrain trade, or in and of itself amounted to a monopoly or an attempt at monopolization.

Trade Developments Require Large Corporations.

This brings the argument to the second question essential to a decision of the case, namely, whether the circumstances which led up to and surrounded the organization of the Steel Corporation and the after conduct of its managers show an intent to unduly suppress competition or to effect a monopoly. This question must be considered in the light of the history and development of the steel business in this country. The testimony shows that in 1852 $80,000 was considered sufficient capital to start a works for producing wrought iron. This was produced in puddling furnaces which had a capacity of about four tons in twenty-four hours, and was operated by four men. There was no continuity of operation, and after the pig iron had been made it was allowed to become cold and shipped to the rolling mill where it was put through other processes not continuous in their operations, the material being permitted to become cold at each of the different stages. Even after a certain amount of Bessemer steel began to be made, wrought iron, manufactured as described, was used for nearly all rolled products. It was not until about 1890 that the discoveries of new processes of steel making brought about a practical revolution in the iron industry. By that time steel had practically supplanted wrought iron. By inventions, the use of electricity and other changes in steel making, the production of steel began to be carried on as one continuous operation from the ore to the finished product, never permitting the material to become cold until it reached the final marketable shape. This increased the economic unit of manufacture from a group of puddling furnaces having a capacity of 40 tons in twenty-four hours, to a steel works having a capacity of 1,000 tons in the same time. Through these changes the cost of producing steel became much less than the cost of producing wrought iron, but the cost of a steel plant was vastly greater than the cost of an iron plant. Consequently those concerns which had sufficient output and capital to convert their works from iron to steel did so:—but there was a vast number who had neither the capital nor the output to permit their making the change. The testimony shows that steel production in 1890 had increased 306% over 1880; in 1900, 155% over 1890; that the majority of concerns which could not change from iron to steel and integrate sufficiently to control their supply of raw material failed in business or were abandoned by their owners, and that this revolution in the industry, due to the introduction of steel in the place of wrought iron, was the fundamental reason for the earlier aggregations of works which took place during the years from 1898 to 1900.

Formation of Federal Steel Company.

One of the units formed as the outgrowth of these conditions was the Federal Steel Company, which acquired ore, coal and coke properties, steel works and transportation facilities located principally in the region of

Chicago. None of the companies taken over by it was in competition with any of the others, except for a very slight competition between its Chicago steel works and one in Ohio. Judge Gary was largely instrumental in the organization of the Federal Steel Company, and testified that it was a strictly business proposition with the intention to form a self-contained and practical organization, which it was believed would produce and distribute to the best advantage and at the least cost and would increase the business at home and abroad without any intention of acquiring a monopoly, suppressing competition or restraining trade.

The organization of the United States Steel Corporation was shown to be essentially a development of the Federal Steel Company. Soon after the latter began business, its officers discovered that it lacked facilities for manufacturing a sufficient diversity of products, and lacked the capital necessary to acquire these facilities, and that the location of its plants was such that it could not compete successfully for the eastern trade of the United States, or reach the foreign markets. In order to overcome these difficulties, an effort was made to raise additional capital, but this did not succeed. While it hung fire, an opportunity to accomplish the purpose of the Federal Steel Company was offered in the following way:

Schwab's Speech to Morgan.

Prominent men connected with the Carnegie Steel Company suggested that the Federal should buy its properties and those of other companies engaged in different lines of steel manufacture. The Carnegie properties were actually offered several times, but it did not appear possible to finance so large a plan. Finally, in December, 1900, at a dinner where Mr. Morgan was present, Mr. Schwab delivered an address on the future of the steel industry in the United States. He dwelt upon the advantages to be derived from specialization and large scale production in the manufacture of steel, and asserted that by such means a great export business could be created. Mr. Morgan was much interested, and asked Mr. Schwab to go over the matter with him again. Mr. Schwab pointed out the economies and advantages which he thought would result from this plan. He stated that our exports of steel had till then been nominal, and gave it as his opinion that the export business could only be made successful by the organization [illegible] cilities for manufacturing all kinds of steel, and would be prepared to furnish to its customers every form of steel products which they might require. Impressed by these views, Mr. Morgan had the matter presented to the directors of the Federal Steel Company, saying that if they thought the plan was a good business proposition, he would try to finance it. The Federal Steel directors were called together and after much consideration were unanimously agreed that the plan was good if it could be financed. It was the opinion of the Federal directors that if the Carnegie properties were purchased, other properties should be acquired for the manufacture of products not made either by Federal or Carnegie. The National Tube, the American Sheet & Wire, American Steel Hoop, American Tin Plate, American Sheet Steel, and American Bridge companies were suggested. Negotiations for the acquisition of these properties were intrusted to J. P. Morgan & Co., and were carried out under the direction of Judge Gary. These negotiations were carried on at arm's length, and in many cases were prolonged. They finally resulted in the purchase, for the best price obtainable, of practically all the stocks and bonds of the companies named and of the Lake Superior Consolidated Iron Mines. The Steel Corporation was thereupon organized. Those who participated in its organization testified that there was no scheme of monopoly or suppression of competition or restraint of trade; that those questions were never mentioned, and that the object to be attained was the creation of a great new steel company, based upon the Federal, which would be able, by the ownership of its raw materials, transportation facilities and finishing mills of all sorts, both in the east and west, to create an organization able to manufacture every kind of iron and steel, to reduce the cost of production and of distribution, and to sell its products to the best advantage in every market in the world. While the Federal Steel Company might have built new plants in the attempt to accomplish this purpose if it could have secured sufficient capital, this would have required time and have resulted in a wasteful duplication of existing facilities.

Apparent Approval by Congressional Commission.

In the Government's petition it is asserted that the various companies acquired by Steel Corporation were themselves monopolies, and that in purchasing them the Corporation must have intended to acquire and perpetuate

such monopolies. The defendants answer that these companies did not appear to have suppressed competition, restrained trade or acquired monopolies, since their percentages of the business had steadily decreased from the time of their formation, the decrease in several important lines having been very marked. Moreover, in 1898, a notable commission was appointed under special act of Congress to investigate industrial combinations and trusts. It consisted of five congressmen, five senators and nine appointees of the President. This investigation commenced in 1898 and continued to the summer of 1901. It investigated the American Tin Plate, American Steel Hoop, American Steel & Wire, National Steel and Federal Steel companies, and it does not appear that the Commision found, or that the evidence taken by it disclosed, that any one of the corporations named was organized with intent to suppress competition, restrain trade or create a monopoly.

The claims of the defense with respect to the organization of the Steel Corporation are summed up in the following paragraph:

Gist of the Defense.

"The organization was but a natural and normal development from existing trade and manufacturing conditions, and was only notable because of the largeness of the conception which underlay it, and the courage exhibited in undertaking to carry it out, but ability to think large and courage to execute the thought are not condemned by the law. Indeed, the future prosperity of our country and its standing among the nations must depend in large measure upon the encouragement given to these attributes of the American business man."

As to what the Corporation has done toward accomplishing the objects declared by its founders much interesting testimony is offered. By a system of comparative cost records sent to all similar departments of the different works enormous economies have been effected, the saving through this system having been approximately $4,000,000 in the blast furnace department alone in the first year after the Corporation was organized. By the use of by-product coke ovens the Corporation now saves about 3,000,000 tons of coal per year, and by briquetting flue-dust about 200,000 tons of ore per year, both of which were formerly wasted. By a concentrating plant developed from long study of mixing ores there has been made available 100,000,000 tons of ore which was theretofore considered unsuitable for steel making. And over 10,000,000 barrels of cement are manufactured each year from blast furnace slag which was formerly a waste product.

Export Trade

One of the most notable achievements of the Corporation in accomplishing the purposes for which it was formed is the development of its foreign trade. Before the Corporation was organized there had been no systematic or sustained attempt to develop foreign trade in any steel products with the possible exception of wire. Steel products were sold abroad at times in considerable quantities, but these sales were made under what is known as the "dumping" process, consisting of the selling of surplus stock in a foreign market at any price which could be obtained. This resulted in demoralizing the foreign trade and ultimately destroying the foreign market. Soon after the Corporation was formed it established a special export company. One of the first things this export company did was to establish selling agencies in all parts of the world. These now number 268, and are located in 60 different foreign countries. It also established warehouses at certain points in many different foreign countries. In these warehouses are carried nearly everything the Corporation manufactures in the way of finished material. There are now about 40 such warehouses. The Corporation's foreign trade has increased from 290,000 tons in 1903 to 2,537,000 tons in 1912. The value of its products sold in foreign markets between 1904 and 1912 amounted to $444,210,00, and in 1912 alone to $91,984,000. The prices received by the Corporation on its exports have steadily increased, while the prices received on the same articles sold in the domestic market have as steadily decreased. The cost of conducting its foreign business has been reduced from upwards of 7% on the invoice value of the goods in 1903 to .8 of 1% in 1911.

Mr. Farrell, the President of the Corporation, who formerly had charge of its foreign business, testified that it would have been impossible for the different constituent companies of the Corporation to have developed the foreign trade which it has developed, if they had remained separate and distinct; because no concern making only limited lines of goods could have afforded the expense of establishing and maintaining the necessary agencies and because a successful foreign business demands that each agency be able to offer all lines of steel products, for one product sells another

and a buyer usually wants to obtain his whole supply from one source. This opinion was corroborated by other witnesses, including men not connected with the Corporation.

With respect to the development of the steel trade generally, it is shown that the production of finished rolled iron and steel in the United States has increased from 9,487,000 tons in 1900 to 21,621,000 tons in 1910, and competitors and customers alike attributed this great growth of the industry during the period named in chief part to the attitude and efforts of the Steel Corporation.

No Freight Rebates.

The manner in which the Corporation has treated its competitors is shown by the following facts: The record does not show a single instance of freight rebates having been either solicited or received by the Corporation, or by any of its subsidiaries since they passed under its control. On the contrary, it was proved that the Corporation forbade the receipt of freight rebates by any of its representatives and notified all the principal railroads to that effect. Not a competitor of the Corporation alleged against it any unfair methods of business, but on the contrary, all its principal competitors testified that its competition, though active and energetic, has been of the fairest sort. Mr. James A. Garfield testified that while Commissioner of Corporations he directed an examination of the Corporation's conduct toward its competitors, and did not find a single competitor who complained of unfair competition on its part.

The Testimony of Customers.

The manner in which the Corporation has treated its customers was proved by the testimony of a large numer of customers from all parts of the United States representing every line of the iron and steel business. They testified to the high character of the service and the fairness of the treatment they have received from the Corporation during the whole period of its existence. Not one of them testified that the Corporation ever refused to sell him any particular article because he bought the remainder of his requirements from its competitors or that it ever conditioned the sale of any article upon the purchase of any other.

With respect to the treatment of its employees, it was proved that the Corporation has reduced wages only once during the whole period of its existence; that this was occasioned by the severe business depression of 1904 which compelled the Corporation to pass the dividends on its common stock and that it restored wages before it restored the dividends; that although other manufacturers reduced wages after the panic of 1907, the Corporation did not; and that since its formation the wages of its employees have been increased on the average 28.5%. It was also shown that the Corporation had expended enormous sums for sanitation, accident prevention, pensions and other welfare work.

The quality of the Corporation's products was proved by its customers to have been constantly improved since it began business.

The price of its products is shown to have decreased on the average of $8.00 a ton since it was formed. It was also shown that the price of steel products *as compared with other commodities* has diminished 16.5% since the Corporation was formed, and since 1903 has been less in the United States than in either England or Germany.

Its percentage of all classes of finished rolled products has decreased from 50.1% in 1901 to 45.7% in 1911, and during this time its competitors have increased their production 67.8% as against 40.6% increase in the tonnage produced by the Corporation.

Tennessee Company Purchase.

With respect to the purchase of the Tennessee Coal, Iron & Railroad Company in November, 1907, the brief presents the following facts: That the Tennessee Company was not a substantial competitor of the Corporation, either actual or potential, because it had never been a success; that the principal product of the Tennessee Company was rails, for which it was receiving over $3.00 less than its actual cost of manufacture; that its products were of poor quality and its markets limited. Its percentage of the country's production of steel rails was only 4.1%, and of all finished rolled products, only .94 of 1%. As to the allegation that the Corporation took advantage of the panic of 1907 to acquire control of a competitor, it is shown that the managers of the Corporation had previously declined repeated offers of the Tennessee property; that when Moore & Schley were first in difficulties it loaned them $1,200,000.00 of its bonds, and when their condition became critical, offered to loan them $5,000,000 additional, in preference to their suggestion that it buy the Tennessee stock; and that the Corporation agreed to the purchase only when it became apparent that nothing else would save Moore & Schley from failure and prevent the spread of the panic.

Competitors Say Competition Was Keen.

In proof of the activity and extent of the competition existing in the iron and steel business, the Corporation called as witnesses the sales managers of a majority of its larger competitors and a very large number of purchasers of steel products from all parts of the United States. One hundred and fourteen of these witnesses were engaged in business in the East, twenty-nine in the South, eighty-eight in the Middle West and eight in the Far West. Forty of them were officers or sales agents of important competitors. The representatives of competitors testified that the prices they quoted varied at different times and on different inquiries at the same time, depending upon the state of their order books, the attractiveness of the prospective order and the keenness of the competition likely to be encountered; that they seldom knew what other competitors were quoting or were likely to quote, and that their own quotations were frequently lowered after being made, where an opportunity was offered to get the business by doing this. All of them testified to the activity of their competitors in different parts of the country, and many described the resulting competition as fierce. The purchasing agents of the great railway systems testified that they prepared specification, invited competitive bids and awarded the contracts to the lowest bidder; that the bids nearly always varied, being nearest to each other in flush times and widest apart in dull times. One hundred and eighty-two witnesses called were dealers in or consumers of steel products purchasing in the open market whenever and wherever they could buy the cheapest, and frequently changing from one manufacturer to another, as quality, service or price seemed to warrant. They testified that competition for their business is and for many years has been keen and aggressive; that the prices quoted to them by the various steel companies varied from one another; and that, so far as they can see, there is no combination among the bidders to fix prices. They covered the country from Boston to San Francisco and from Duluth to New Orleans. Not a single witness was called by the Government to rebut their testimony.

No Restraint of Trade.

The object of any such petition as the Government has filed in this case is to remove artificial barriers from the channels of trade and to restore competitive conditions. Yet this evidence shows without the slightest contradiction that no artificial barriers exist in the steel trade of the United States; that for nearly ten years competitive conditions in this trade have been ideal, and that under these conditions new competitors have sprung up, old competitors have grown and expanded, products have improved, prices have declined and trade has flourished as never before.

In proof that the Steel Corporation is not engaged in restraining or monopolizing trade or threatening to do either one or the other, it is shown that the Corporation's production is only 45.7% of the total of the country, and 40.9% of the production consumed at home. It has no monopoly of raw materials, for discoveries and development of new ores have much more than kept pace with the amount mined, and the Corporation's holdings even in the Lake Superior District are only 45.6% of the known and developed ores of first quality, and less than 10% of all the ores in that District of a quality permissible for use. As to coal, it is shown that the Corporation has only about 9% of the deposits in the Connellsville District, and that the general supply available for American manufacturers is practically without limit and monopoly out of the question.

It is shown that the Corporation has ten large competitors fully integrated from the ore to the finished product, with capital amply adequate to their needs, and that these competitors have grown very much faster than the Corporation, several of them which were started after the Corporation was organized having already reached a stage of great development. In addition there are great numbers of smaller competitors which have been correspondingly successful.

Some of the witnesses said that the Corporation had an advantage over its competitors in the possession of railroads for the transportation of its raw materials, but they admitted that this existed only if the rates were unreasonable. It was shown that the reasonableness of these rates has been regularly submitted to the Interstate Commerce Commission and will shortly be determined by this tribunal created by Congress for that very purpose.

As to the power of the Corporation to put its competitors out of business, it was shown that its principal competitors are proportionately as well equipped and financed as the Corporation; that while it has some advantages over them, they have some advantages over it; that its principal competitors are proportion- the United States, and with respect to prac-

nearly all the markets, some of them are as favorably situated as the Corporation; that it could not war on one competitor without involving all; could not confine a warfare to a single competitor, a single product or a single locality; and that in any warfare its loss would be proportionate to theirs. One of its principal competitors summed up the situation by saying that "it would be impossible for the Steel Corporation to put its competitors out of business without committing suicide". Representatives of both large and small competitors testified to this situation.

Approval by Congress, Bureau of Corporations and Roosevelt.

In conclusion, attention is called to the fact that the Government investigated the subsidiaries of the Steel Corporation from 1898 till 1901 through a commission appointed by Act of Congress, and that this same commission investigated the Corporation immediately after it was organized; that the Government again investigated the Corporation and all its subsidiaries through the Bureau of Corporations from 1905 till 1907. It does not appear that these investigations disclosed any illegality. On the contrary, the Commissioner of Corporations who conducted the 1905-7 investigation testified that his examination was as thorough and complete as it was possible to make it; that he found no violation of the Anti-Trust Act, and so reported to the President. Mr. Roosevelt testified that the Attorney General advised him in November, 1907, that so far as the Department of Justice was concerned, no reason existed for believing that the Steel Corporation was subject to prosecution under the Anti-Trust Act.

The Corporation has kept the public and the Government fully informed as to its course of conduct and as to its policies ever since it was organized; and in the matter of the purchase of the Tennessee Coal, Iron & Railroad Company in particular, it informed the President before-hand of its proposed action and of the reasons therefor, and only proceeded after being advised that the Government saw no reason for objecting thereto.

Meanwhile, relying on the apparent approval of the Government and the public, the Corporation has gone on spending hundreds of millions of dollars in the development of its domestic and foreign trade to the manifest advantage of its employees, its customers and the general public, and without injury to its competitors or others; and in the same faith and confidence, over 150,000 persons have invested their savings in its stock, included among whom are some 50,000 of its employees. It is claimed that these circumstances indicate a contemporaneous judgment in favor of the integrity of the organization and management of the Steel Corporation by those whose duty it was to judge, and that such judgment ought not to be overturned at this late date after rights of so important a character have grown up in reliance thereon.

Throughout the brief it is contended by counsel for the defense that the testimony of large numbers of witnesses, including customers, and competitors of the Corporation, conclusively shows that the conduct of the Corporation has been uniformly open and fair and not injurious to customers or competitors or prejudicial to the public interests; and that the Corporation neither possesses nor has attempted to exercise a monopoly; also that it has not restrained, but on the contrary, has promoted and extended, trade and commerce.

PRESIDENT FARRELL ON WAR AND EXPORT TRADE.

By James A. Farrell, President of the U. S. Steel Corporation and Chairman of The National Foreign Trade Council.

One week of the European war did more to convince the American people that foreign trade is necessary to our domestic prosperity than ten years of academic discussion.

Our people have learned that a larger outlet is necessary for their products and that grain and cotton could be affected in a dislocation of the world's markets, although little thought has heretofore been given, nationally, to the vital importance to the country, as a whole, of a greater diversification of exports and wider markets.

Among the current economic fallacies is that, with the present elimination of several of the manufacturing countries of Europe as sources of supply, the neutral consuming markets of the world, must look to the United States for their requirements.

Manufacturers and merchants have been exhorted to expand their trade activities in markets supposedly vacated by the warring nations. Many articles are written which indicate a lack of knowledge of the conduct of the world's business, and it does not appear to be generally recognized that the changed conditions, as a result of the shock to the financial and credit systems of the world, involve more than a casual survey of the inter-trade relations of all nations.

Bankers have learned that credit is an international commodity, and producers, whether engaged in farming or manufacturing, are now conscious of the fact that it requires an exchange of commodities between countries to maintain equilibrium of gold exchange.

It is apparent that even a neutral nation cannot materially profit when a world-wide contraction exists of the mechanism of credit and the cost of foreign exchange. The problems at present confronting the export and import trade of the United States are largely due to the inability of foreign buyers to finance transactions on a credit basis, due to straightened financial conditions in many export markets. This is particularly the case with some of the larger South American countries, whose governments, in order to avoid general bankruptcy, declared moratoria, resulting in decreased buying power, which can be stimulated only by the establishment of credits from the proceeds of their exported products.

When hostilities forced the European merchant fleets to remain within the harbors of the world, not only was our oversea trade abruptly halted, but the resultant shock to Atlantic, Gulf and Pacific sea ports disrupted the railroads and dislocated domestic commerce, as well as clogging the arteries of transportation and finance.

Manufacturers who export a portion of their product were compelled to curtail operations. The workman who performs his task with no thought as to whether his handiwork was being sold in Indiana or in India, suddenly found that its destination was of vital concern.

Manufacturers engaged in what they considered purely domestic business, and who had not long been indifferent to the necessity of fostering American foreign commerce, were, in many instances deprived of the foreign materials essential to fabrication of their product.

Farmers seeking customary loans to move their crops, encountered a money stringency resulting from demands for gold to satisfy maturing American indebtedness in Europe which could not be liquidated by merchandise.

Our Commerce, supposedly neutral, suffered as though it were that of a belligerent. The utmost exertions of the Government and of finance and industry were brought into play.

Just when a resumption of former prosperity seemed assured because of our bountiful crops, it became necessary to apply for the first time the provisions of the Emergency Currency Act. Deprived of its normal outlets for cotton and other natural commodities, as well as manufactures, the nation was literally over-stocked with commodities of all kinds.

The initial severity of this congestion was to some extent relieved by the enactment by Congress of laws permitting the transfer to American registry of foreign-built ships and the creation of a Government Bureau of War Risk Insurance.

At present, there is no lack of shipping facilities, as there are more ships than cargoes to all parts of the world. Our trade is not halted through lack of transportation, but we should analyze this apparent security.

The greater part of our oversea commerce is still being carried in foreign ships, and is therefore vulnerable to the hazards of war. Up to the present, seventy-seven foreign-built vessels, aggregating 275,000 tons, have been transferred to American register, a comparatively small number, when it is considered that upwards of 2,500,000 of foreign flag tonnage is owned by Americans; but many more vessels would doubtless be transferred to the American flag, if prudent revision of our navigation laws were made, rendering operation of American vessels possible on a basis fairly competitive with ships of other nations and, until this is done, capital cannot be expected to purchase or build ships and operate them at a loss in oversea trade. We need more liberal navigation laws, rather than subsidies.

Sixty per cent of our exports normally go to Europe. (The condition of that market needs no description). About twelve per cent is consumed by Latin-American countries, whose purchasing power has shrunk on account of curtailed European investment. In normal times, Canada buys from us more than all of Latin-America.

Our products go to all nations of the world, but more largely to Europe than to South America, Africa, Australasia, and the Far East.

Satisfactory results will be achieved by systematic pursuit of trade in those products which we can reasonably expect to sell in competitive oversea markets during times of peace or war, and while there is no immediate prospect of materially extending our trade with many countries, owing to financial conditions and curtailment of purchasing power, there is, nevertheless, an opportunity to systematically organize selling connections and, through co-operation between our bankers and manufacturers, it should be possible to establish a reasonable system of credits, since it should be borne in mind that, for the present at least. Europe is in no better position than the United States to finance their customers, and, meanwhile, we can be adapting our commercial and financial machinery to creating a larger exchange of values with the countries with whom we trade, since, as far as concerns South American countries it will be necessary to extend our financial and credit operations before any material improvement in our trade with those countries can be realized.

The financing of foreign trade now rests largely with the European bankers, especially trade between this country and South America and Asia. The currency of world commerce is the bill of exchange on London, and high rates of exchange prevailing since the war began have laid a heavy burden upon our exporters. The Latin-American Trade Committee of business men appointed by Secretary of Commerce Redfield, has recently reported on the disadvantages of this system, in so far as it operates against the discharge of our indebtedness to South America by means of increased exports.

Our experience at home should help us in shaping the course of our foreign trade.

Nothing has been more characteristic of the development of our country than the establishment of banks by business men, to provide the accommodation required by their particular lines of industry. Thus far, our foreign trade has been conducted without our own banks and without adequate facilities for discount and rediscount of bills based upon transactions in oversea commerce.

The Federal Reserve Act permits both the discount privilege for foreign paper and the establishment abroad of branches of national banks. When such branches have been established, a new and purely American facility will be added to our foreign trade resources. Pending this, it is hoped that reasonable accommodation will be extended by banking institutions, and reciprocal balances established between the United States and, especially, the Latin American countries.

The Federal Reserve Act has been described as designed to make credit available to every man with energy and assets, and it is to be hoped that this will be true of the foreign aspect of our banking also.

We know from the experience of the foreign branches of European banks that time and experience are necessary to develop the efficiency and extensive resources of such institutions. Bankers are not needed in foreign markets merely to buy and sell exchange, but to do business in the countries in which they are located and to assist in developing their resources and promoting exports, imports and investment.

It remains to be seen how far the Federal Reserve Board will permit national banks, with their definite domestic responsibilities, to engage, through their foreign branches, in the diversified enterprises by which European banks, organized solely for foreign business, seek to aid the foreign trade of their nations.

Except for the early dislocation of trade caused by the outbreak of hostilities, Great Britain has, despite the war, continued her foreign trade with little interruption, largely because of the effective emergency measures promptly adopted by the British Government; whereas we seem to be in an unfortunate position, in that the Federal Reserve system, which promises so much for the future, has not as yet been established.

Nevertheless, it should be impressed upon our bankers, as well as upon our merchants and manufacturers, that, unless some steps are taken to insure uninterrupted continuance and development of our foreign trade, there will be an unfavorable effect upon our domestic situation.

We should keep our commercial pores open by facilitating trade, and in this the Federal Reserve Board will undoubtedly be of great assistance, if representations are made by merchants and manufacturers looking to the Board taking up the question with the bankers of the nation.

Many countries are now turning to the United States for funds. Future opportunities in foreign markets for our manufacture may be seriously lessened unless investment develops.

Our economic position does not, of course, warrant loaning large sums abroad simply for interest returns and, while the demands of domestic industries come first, foreign investment may later prove to be equivalent to domestic investment, in so far as it will result in a continued demand for our goods and employment of our workmen.

Exports started during October show a gain of several millions of dollars, as compared with the corresponding period of last year and, although much of this represents shipments of so-called war munitions, there is a large movement of foodstuffs, which will relieve some of our indebtedness to Europe and correspondingly affect exchange.

The American Manufacturers Export Association has accomplished much in foreign trade developments. The purpose of their meeting is to endeavor to solve those problems which the manufacturer or exporter individually cannot solve and which require collective action and national unity of purpose.

Joining with the Pan-American Society of the United States and the American Asiatic Association, you called the National Foreign Trade Convention, held in Washington last May.

The published proceedings of that meeting constitute the most comprehensive discussion of our foreign trade problems to be found within the covers of any book.

That the spirit of the conference might be carried out in co-ordinating the industrial, commercial, transportation and financial interests identified with the foreign trade activities of the nation, the National Foreign Trade Council was created, which body is composed of upwards of fifty merchants, manufacturers, bankers, railroad and steamship men, representing all sections of the country affected by foreign trade, to consider such problems as arise from time to time.

The Council has, at the suggestion of various Government Departments, appointed committees to confer upon and assist in devising measures to relieve the situation caused by the war, such as the ship registry bill, the war risk insurance bill, the consideration of judicious revision of the navigation laws, and the promotion of Latin-American trade.

Such co-operation between the Government and business representatives should assist in solving many of the problems concerning our foreign trade.

The security and orderly development of our foreign trade depends largely upon the participation of an increasing number of smaller manufacturers and greater diversification of our export trade.

As long as it concerns only a comparatively small number of large interests, for-

[illegible] will never be the object of national solicitude. Probably the most important [illegible] of the Foreign Trade Council is that on methods by which the smaller manufacturers can more economically and effectively enter foreign markets. The reduction of unnecessary expenses of [illegible] and elimination of useless effort is imperative.

It is impossible to develop a growing and important foreign trade without business co-operation. It is the duty of this Association and of everyone engaged in foreign trade to carry on the constructive work now being done by the commercial industrial, transportation and financial organizations interested.

TOPICAL TALKS ON IRON.

XX. Productive Capacity the United States.

Statements involving the total productive capacity of the iron and steel industry of the United States are often made which are quite misleading. When it is said that the industry, or a particular branch of the industry, is operating at a certain percentage of its capacity, the statement implies a tonnage basis for the capacity, for the production is a definite tonnage and the percentage must refer to the relation between that tonnage and the total tonnage capacity. Usually such percentage statements are arrived at by other means, as by noting whether a plant is operating at full time or only so many days per week, but such comparisons can hardly be accurate. A Bessemer plant operating four days a week, for instance, is not likely to blow its heats as rapidly as if the plant was crowded with business.

Statements of this sort even though technically correct are apt to be misunderstood through the terms not being precisely stated or correctly understood. Thus, to suppose a case, let each branch of the finished steel trade, wire, tin plate, pipe, etc., be operating at precisely 50% of its particular rolling or finishing capacity. As the steel industry is normally constituted, the steel making departments would not in such event be operating at 50% of their capacity, in order to supply the steel, but rather at something like 60%, for the reason that the normal alignment is for there to be a considerable excess of finishing capacity. It requires a long time to build a steel plant, and finishing capacity cannot be increased or restricted at will, and it cannot be determined in advance how the steel demand will be allotted as to the different branches. Suppose that in one year rails comprise a given percentage of the total finished steel output, and wire another percentage; in the following years the rail percentage may decrease and the wire percentage increase. If steel making and steel finishing capacity were precisely balanced there would be times when some branches would be unable to supply the full demand and others would suffer from lack of orders, the result being that some steel making capacity would be idle. Hence it is normal in arranging any plant or group of plants that the finishing capacity is in excess of the steel making capacity. If, therefore, one ascertains the percentage of its capacity at which each finishing department is operating, the average of the percentages is not the rate at which the steel industry as a whole is operating, for with such a conception of the condition it would never be possible for the industry to operate at 100%. The best statement, therefore, applicable to the steel industry as a whole, is a statement based on ingot capacity, and sometimes such statements appear high, because the finishing departments, taken separately, do not appear to be running at an average percentage as high.

Even in an individual plant, however, there is considerable latitude in stating capacity. There should be a normal capacity, such as would be exceeded when things work out exceptionally well, but would not be equalled when minor disturbances occurred. Even the weather has a great influence. A plant operated otherwise to best advantage throughout the year would turn out a much greater tonnage in March and October than in December and January or July and August.

Even in estimating the total capacity in any one branch of the iron and steel industry there is room for considerable leeway. With blast furnaces, there is always a large number that may be found fit or unfit ac-

cording to commercial and other conditions. If the furnace is idle it is easy to count it as part of the country's capacity, but it may be found that in a time of very considerable prosperity it is still impossible for the furnace to operate. Observation over a long period of years shows that it is the custom to overestimate the country's blast furnace capacity when the industry is running light, but to take the thing on the proper basis, or possibly even to underestimate the capacity, when the industry is busy. In inactive times the capacities of all the furnaces in physical existence is frequently added up, giving a total of pig iron that could never be made in a year, under the most favorable conditions. Again, when the industry is running full, turning out all the iron it can, there frequently appear statements that in the previous dull period the furnaces were relined and repaired, so that in this period of activity they are making more than their normal amount, and will not be able to make as much iron in future as they are making at the moment.

In any event, the stated capacity must be in relation to prices offered for pig iron, and prices that must be paid for raw materials, and no precise basis can ever be reached, because a strong element of prediction is involved. In active times a furnace supposed to be fit might find advances in coke and ore so great that the advance in pig iron would not be sufficient to permit of profitable operation.

Assuming a condition of general prosperity the probability is that the present blast furnaces in the United States would be capable of making about 35,000,000 tons of pig iron a year, while the theoretical capacity ascertained by adding the individual capacities of all the stacks, with no allowances even for relining, would be considerably in excess of 40,000,000 tons.

The question of the steel ingot making capacity of the United States is likewse surrounded with doubts. There is considerable Bessemer capacity which will probably never be utilized, the total demand for Bessemer steel not being sufficient, even at a time when there is a scarcity of open-hearth steel. Again, there are plants using the pig and scrap process that would have a certain output when scrap is plentiful and a large scrap percentage can be used, that would reduce the scrap percentage, and thus cut down the steel output somewhat, when scrap became scarce and high, even though the market price of scrap should be considerably lower than the market price of pig iron, because the works would be actually paying the scrap price, while it would not be paying the pig iron price through being itself a pig iron producer.

The total production of steel ingots and castings in the United States in 1912 was 31,251,303 gross tons, and in 1913, 31,300,874 tons. During the major portion of each year the open-hearth steel departments ran full, but at no time was the full Bessemer capacity employed. Assuming full demand throughout the year for open-hearth, and the proportion of Bessemer demand that would be expected from the present views of buyers as to the relative merits of the two descriptions of steel, a capacity of between 34,000,000 and 35,000,000 tons may be assumed, but here again an element of prediction enters, for if the demand ran largely to rails, structural shapes, plates, etc., the proportion of Bessemer steel that could be sold would be reduced, whereas if the demand ran disproportionately towards merchant bars, wire and tin plate the proportion of Bessemer steel that could be sold would be increased.

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IRON AND STEEL.

THE SITUATION.

The iron and steel market is not in a state of stagnation; it is in a state of complete prostration. The closing fortnight of October witnessed an absence of buying, of specifying on contracts, and of general interest in the market on the part not only of buyers but even of sellers, that certainly has never before been witnessed in the history of the steel trade, now some quarter century old. In earlier years, when wrought iron was the controlling factor, instead of steel, some parallel to present conditions may have existed for periods in 1878, long remembered as a phenomenally bad year although, naturally enough perhaps, followed the next year by one of the greatest booms, if not the greatest, in all iron and steel market history. Taking up the great industrial depression of the eighteen nineties, picking out the worst of those years, 1896, and the worst period in that year, one does not find a parallel to what has occurred, or rather has failed to occur, in the past fortnight. The reference to 1878 having been a phenomenally bad year, immediately followed by a boom year, furnishes no basis in itself for predicting much better things next year, though the reference contains a suggestion. There was a similar boom in 1899, but while 1879 was preceded by a year in which pig iron production was less than in three much earlier years, 1872, 1873 and 1874, the boom year 1899 was immediately preceded by two years which while dull each broke all previous records for pig iron production. It was a sudden change from 1878 to 1879, but the change from 1896 to 1899 was slow.

The rate of steel production at the beginning of November is approximately 40% of the capacity. Only in very exceptional instances, as when many mills have been closed over the Christmas holidays, or when there has been a sudden but largely temporarily closing by reason of a panic, has the percentage rate fallen so low. The steel mills have never run for more than three consecutive months at a lower rate

There is no definitely established price situation. Prices are not a consideration. Usually in dull periods they are an issue, [illegible] present

the buyers have nothing like a definite position. They are waiting for a chance to act, not a chance to buy at certain prices. Indeed, with many products it is a question where the market price really stands. There is actually not enough business offered, in some instances, to disclose at what prices mills would be willing to sell. The great majority of producers have nominal asking prices, which they would be only too glad to be tempted to cut in an effort to start business moving.

So far as we are able to quote prices representative of what may be the market, our pig iron prices make a composite price 30 cents a ton lower than a month ago, composite finished steel standing 20 cents per 100 lbs. or 40 cents a net ton lower than a month ago.

Trends in the Trade.

A month ago we said, "In strictly new buying there is no trend, as this has been at an extremely low rate for several weeks." That statement now proves to have been ill-advised, for it is quite apparent that strictly new buying was at a less rate at the close of October than at the close of September, so that there probably was a downward trend then, though the total movement was so light that the trend was not discernible.

The practical absence of new buying does not imply an entire absence of business. There is business being placed, in the form of specifications against contracts, but the volume is light. In approximately the order named—standard steel pipe, bars, wire products, sheets, tin plates, structural shapes, plates, rails—specifications for finished steel products are being placed at rates equivalent to from about 50% down to about 10% of capacity. The average of all is probably less than 30%. The rate of steel production being, as already stated, about 40%, the trend in it is downward, towards a rate of say 30%.

The trend of prices is of course downwards, but the fact is not particularly significant. Such prices as are developed are on extremely limited transactions. They disclose an extremely limited absorptive capacity, but from observing how small is the tendency of mills to cut prices, relative to their needs for tonnage, and considering also that their manufacturing costs per ton are necessarily increased by such light operations

IRON AND STEEL.

and taking some account also of their emphatic statements that they see no reason for prices to be cut in these peculiar circumstances, we cannot commit ourselves positively to the view that there is a clear and important downward trend in prices. While the absorptive capacity of the market is shown to be very small, the supplying capacity may be found almost equally small. In other words, we do not know that a really large volume of steel would become available, were orders offered at present or somewhat lower prices. We may suspect that the mills would be ready to sell, but we cannot be as sure of that as we usually can be in an ordinary period of market dullness The present situation is extraordinary in nearly all respects.

Export Trade.

There has lately appeared a very sharp export demand for a variety of goods manufactured from steel. Almost spectacular in its character has been the demand for motor trucks and for lathes and a few other descriptions of machine tools, there being even some demand from Germany, though as a rule the demand for such goods is from England, France and Russia, in the order named.

The export demand for regular steel mill products has perhaps increased a trifle, but in general the total is still well below the relatively light rate that obtained for a few months before the war. Of greatest interest is the continued demand for barb wire, chiefly from England. This demand has

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered)

	Bessemer, Valley	Basic, Valley	No. 2 fdy, Basic Phila.	No. 2X fdy, Phila.	No. 2 fdy, Buffalo.	No. 2 fdy, Cleveland.	No. 2 fdy, Chicago.	No. 2 fdy, Birmingham.	Ferro-manganese.*	Furnace coke†
1913—										
Jan. ..	17.25	16.50	17.50	18.00	18.49	17.50	17.75	18.48	13.72	65.00	3.85
Feb. .	17.25	16.43	17.12	17.75	18.23	17.22	17.44	17.87	13.46	65.00	2.60
Mar. .	17.20	16.14	16.60	17.50	17.81	16.79	16.75	17.75	13.04	64.00	2.47
April .	17.00	15.87	15.66	17.00	17.49	15.96	15.41	17.60	12.60	61.00	2.20
May ..	17.00	15.25	14.73	16.50	16.77	15.58	15.56	16.67	11.74	61.00	2.15
June ..	16.34	14.50	14.18	16.50	16.26	14.43	14.95	16.24	10.89	61.00	2.20
July ..	15.86	14.40	13.88	15.90	15.66	14.01	14.68	15.38	10.50	59.00	2.50
Aug. .	15.63	14.09	13.94	15.25	15.56	14.20	14.50	15.44	10.85	56.70	2.50
Sept. .	15.75	14.00	14.00	15.25	15.97	14.25	14.55	15.50	11.20	54.50	2.37
Oct. ..	15.67	13.97	13.83	15.25	15.94	14.25	14.73	15.50	11.48	50.28	2.10
Nov. .	15.23	13.28	13.57	15.13	15.61	13.96	14.35	15.43	10.80	50.00	1.88
Dec. .	14.95	12.83	13.38	14.75	14.98	13.32	13.76	14.83	10.50	47.00	1.77
Year .	16.26	14.77	14.87	16.27	16.56	15.12	15.37	16.39	11.73	57.87	2.38
1914—											
Jan. ..	14.06	12.51	13.00	14.25	14.69	12.76	13.30	14.35	10.63	43.42	1.88
Feb. ..	14.13	13.21	13.21	14.00	14.88	13.02	13.56	14.46	10.52	38.33	1.90
Mar. ..	14.20	13.05	13.25	14.10	15.00	13.38	13.75	14.75	10.75	38.40	1.92
April .	14.00	13.00	13.25	14.25	15.00	13.75	14.21	14.75	10.52	38.00	1.90
May ..	14.00	13.00	13.17	14.10	14.91	13.57	14.25	14.68	10.50	38.00	1.83
June ..	14.00	13.00	13.00	14.00	14.51	13.01	14.35	14.21	10.29	38.00	1.80
July ..	14.00	13.00	13.00	14.00	14.40	13.00	13.81	14.38	10.06	37.50	1.75
Aug. .	14.00	13.00	13.00	14.00	14.28	13.18	13.75	14.44	10.00	111.00†	1.74
Sept. .	14.00	13.00	13.00	14.00	14.68	13.25	13.75	13.85	10.00	83.00	1.70
Oct. ..	13.97	12.88	12.89	14.00	14.29	12.74	13.73	13.48	10.00	68.00	1.65

* Contract price, f.o.b. Baltimore; †Prompt, f.o.b. Connellsville ovens.

† Spot shipment; no contract market.

IRON AND STEEL.

run well in the tens of thousands of tons, and to the close of October has shown no abatement.

Conspicuous on account of the complete prostration in South American countries are some enquiries now coming from that continent for some steel products, particularly sheets, but it is the general view that nothing large by way of export trade for South America can be expected for some time.

Steel Corporation Earnings.

The meeting of the steel corporation directors of October 27th was awaited with unusual interest, as it was generally expected the common dividend would be cut. For two quarters the corporation had paid the common dividend of 1¼% almost wholly out of surplus and it was recognized that such a policy could not be continued to another quarter unless there were such promises of improved business as to suggest that that would be the last occasion upon which this surplus would have to be drawn upon, and instead of there being promise of improvement it was obvious that fourth-quarter earnings would show a decrease from whatever should be shown for third quarter.

The expectation was not disappointed, as the common dividend was cut from 1¼% to ½%. The reduced dividend precisely absorbed the earnings left after payment of the preferred dividend, since the amount passed to surplus was only $89,000. All the directors stated was that they acted with reluctance in making the reduction. It may be surmised with considerable show of reason that what they did was to adopt a policy, after paying two full dividends almost wholly from surplus, of paying on the common stock only such dividends as might

FINISHED STEEL PRICES.

(Average from daily quotations, f.o.b. Pittsburgh.)

	Shapes.	Plates.	Bars.	Pipe.	Wire.	Wire Nails.	Cut Nails.	Sheets Black.	Sheets Galv.	Tin plate.	Composite Finished steel.
1913—											
January	1.50	1.50	1.40	80	1.55	1.75	1.70	2.32	3.47	3.60	1.7737
February ..	1.45	1.45	1.40	80	1.55	1.75	1.70	2.35	3.50	3.60	1.7625
March	1.45	1.45	1.40	80	1.56	1.76	1.70	2.35	3.50	3.60	1.7646
April	1.45	1.45	1.40	79¾	1.60	1.80	1.70	2.35	3.45	3.60	1.7743
May	1.45	1.45	1.40	79½	1.60	1.80	1.70	2.35	3.40	3.60	1.7786
June	1.45	1.45	1.40	79	1.55	1.75	1.70	2.29	3.38	3.60	1.7719
July	1.45	1.45	1.40	79	1.50	1.70	1.70	2.25	3.31	3.60	1.7600
August	1.45	1.44	1.40	79¾	1.47	1.67	1.60	2.20	3.25	3.60	1.7400
September	1.40	1.40	1.40	80	1.45	1.65	1.60	2.12	3.17	3.60	1.7093
October	1.39	1.36	1.39	80	1.40	1.60	1.60	2.04	3.08	3.50	1.6779
November .	1.34	1.29	1.30	80	1.40	1.60	1.60	1.98	2.98	3.40	1.6203
December ..	1.24	1.21	1.22	80	1.35	1.55	1.60	1.90	2.90	3.40	1.5558
Year	1.42	1.41	1.38	79¾	1.50	1.70	1.66	2.21	3.28	3.56	1.7241
1914—											
January	1.20	1.20	1.20	80	1.33	1.53	1.60	1.86	2.86	3.40	1.5394
February ..	1.25	1.21	1.22	79	1.40	1.60	1.60	1.95	2.95	3.40	1.5794
March	1.21	1.18	1.20	79	1.40	1.60	1.60	1.95	2.95	3.40	1.5638
April	1.18	1.15	1.15	79½	1.40	1.60	1.60	1.90	2.89	3.39	1.5337
May	1.15	1.14	1.14	80	1.38	1.58	1.60	1.85	2.79	3.30	1.5078
June	1.12	1.10	1.12	80	1.30	1.50	1.58	1.81	2.75	3.30	1.4750
July	1.12	1.11	1.12	80	1.32	1.52	1.55	1.80	2.75	3.30	1.4805
August	1.18	1.18	1.18	80	1.37	1.57	1.55	1.88	2.87	3.50	1.5421
September..	1.20	1.19	1.19	80	1.40	1.60	1.55	1.98	2.97	3.48	1.5630
October ...	1.16	1.14	1.15	80	1.40	1.60	1.55	1.96	2.96	3.25	1.5236

IRON AND STEEL.

be currently earned. If so, there will be no common dividend declared three months hence, for fourth quarter earnings must necessarily show a large decrease. The third quarter earnings, $22,276,002, were easily the largest of the year, passing those of the first quarter by $4,281,621 and those of the second quarter by $1,818,406. The reduction of the common dividend by three-fifths, when earnings increased by an amount equal to one-third of the former dividend, is emphatic testimony to the serious nature of the situation and the very poor prospects of improvement such as would make an early impress upon earnings.

We now predict that fourth quarter earnings will lie between $11,000,000 and $13,000,000, and for a prediction that there will be so large a decrease there is much ground. In the third quarter there were earnings from ore transportation probably equal to $2,000,000 or more, to be cut off almost completely for fourth quarter. Shipments of steel will be materially less, while correspondingly costs per ton will increase and realized prices will average slightly less, these influences all operating to reduce earnings.

Wage and Salary Reductions Assured.

About the beginning of last April it developed that a majority at least of the leading independent steel producers were in

U. S. STEEL CORPORATION'S OPERATIONS.

EARNINGS AND UNFILLED ORDERS.

Earnings by Quarters.

Net earnings by quarters since 1908.

Quarter.	1914.	1913.	1912.
1st	$17,994,381	$34,426,801	$17,826,973
2nd	20,457,596	41,210,813	25,102,265
3rd	22,276,002	38,450,400	30,906,512
4th	.....	23,036,349	35,185,557
Year	.....	137,133,363	108,178,307
	1911.	1910.	1909.
1st	$23,519,203	$37,616,876	$22,921,268
2nd	28,108,520	40,170,960	29,340,491
3rd	29,522,725	37,365,187	38,246,907
4th	23,155,018	25,901,730	40,982,746
Year	104,305,466	141,054,753	131,491,412

Unfilled Orders.

(At end of the Quarter):

	First.	Second.	Third	Fourth.
1903..	5,410,719	4,666,578	3,278,742	3,215,123
1904..	4,136,961	3,192,277	3,027,436	4,696,203
1905..	5,579,560	4,829,655	5,865,377	7,605,086
1906..	7,018,712	6,809,584	7,936,884	8,489,718
1907..	8,043,858	7,603,878	6,425,008	4,642,553
1908..	3,765,343	3,313,876	3,421,977	3,603,527
1909..	3,542,590	4,057,939	4,796,833	5,927,031
1910..	5,402,514	4,257,794	3,158,106	2,674,757
1911..	3,447,301	3,361,058	3,611,317	5,084,761
1912..	5,304,841	5,807,346	6,551,507	7,932,164
1913..	7,468,956	5,807,317	5,003,785	4,282,108
1914..	4,653,825	4,032,857	3,787,667	.....

BOOKINGS AND SHIPMENTS.

In this table, first two columns, percentages of bookings and shipments to total capacity, are our estimates, while last column is derived from official reports of "unfilled tonnage" while third percentage column is directly computed from this tonnage column.

1912—	Shipments. %	Bookings. %	Difference. %	Difference. Tons.
October ..	98	187	+89	+1,042,874
November .	96	120	+24	+258,512
December ..	97	104	+ 7	+ 79,281
January 1913	98	89	— 9	—104,796
February ..	98	82	—16	—170,654
March	93	77	—16	—187,758
April .	93	51	—42	—490,194
May	95	41	—54	—654,440
June	93	47	—46	—517,005
July	90	55	—35	—407,961
August	90	75	—15	—175,888
September .	82	74	—18	—219,683
October ...	87	74	—40	—490,018
November ..	70	59	—11	—117,420
December ..	50	40	—10	—114,239
January 1914	55	83	+28	+331,572
February ...	67	105	+38	+412,764
March	72	40	—32	—372,615
April	67	35	—32	—376,757
May	62	37	—25	—278,908
June	63	66	+ 3	+ 34,697
July	64	75	+11	+125,732
August	67	72	+ 5	+ 54,742
September .	62	24	—38	—425,664

IRON AND STEEL.

favor of reducing wages at a relatively early date unless conditions should improve.

There is reason to believe that the Steel Corporation allowed it to be known that it would not join in such a movement unless conditions should grow much worse, and specifically unless the common dividend should first be reduced. While there is no strictly official warrant for this statement, we believe it can be made with the utmost confidence. Developments since the independents developed their views, in the great decline in steel activity and the great reduction in the common dividend, seem to be amply sufficient to make the prospect of wage and salary reductions an established fact. It is commonly believed that there will be general reductions in salaries as well as in wages, all to be completed not later than January 1st. Several of the smaller interests have lately made reductions.

The war has injected one new thought in this wage question, that with the hopes we entertain of securing a greatly enlarged export trade, and holding it when the war is over, we should reduce our manufacturing costs, and possible wage reductions are frequently spoken of as means to expand our trade and eventually to give the American workman better conditions than would obtain with present wages and not as much business.

The Future.

In previous periods of market stagnation a somewhat definite level has been disclosed, below which activity could not fall, and when the limit of stagnation was reached an improvement would perforce set in. The war has introduced altogether a new alignment, and a greater stagnation, or prostration, has been developed than ever before. Even it, however, must have its limitations, though we could not tell in advance where they stood. We may say it is inconceivable that conditions should remain as bad as they are at present for even a month, let alone the two months intervening to the turn of the year, but it may be rejoined that many things, now accomplished facts, would have been likewise regarded as inconceivable four months ago. Nevertheless we take our chances and predict a definite improvement in market activity by the middle of December, and a larger [illegible] the new year than in the poorest four consecutive weeks that may intervene from now until then. Production, as observed, is declining at the moment, hence we expect the next four weeks to show lighter production than the past four weeks.

For the more distant future we are confident there is much activity. Nearly all were agreed, just before the war, that the United States was on the verge of a great expansion in activity, a period of general and relatively prolonged prosperity. No physical thing has been taken from us, but rather special opportunities are promised to be given us.

Price Movements.

We omit our usual review of the trades in detail, for what is with us and before us is a condition of the whole trade, not a composite or synthesis of parts. We can ascertain nothing as to the future by putting together the condition in different branches of the trade. We merely present our usual table showing the bulk movement in pig iron prices, disclosed by our computation of **composite pig iron,** and note that while in finished steel the price situation is colorless, in pig iron the price level is noteworthy, being easily the lowest that has obtained since 1904.

	On first of month.	Change during month.
January (1913)	$17.450	—17.5c
February	17.275	—33.0
March	16.945	—32.0
April	16.621	—61.0
May	16.015	—76.5
June	15.250	—55.0
July	14.700	—25.0
August	14.450	+17.5
September	14.625	+15.0
October	14.775	—20.0
November	14.525	—47.5
December	14.050	—50.5
January (1914)	13.545	—12.0
February	13.425	+45.0
March	13.875	— 2.5
April	13.85	0.0
May	13.85	17.5
June	13.675	—12.5
July	13.60	—10.0
August	13.50	— 0.5
September	13.495	—12.0
October	13.375	—30.0
November	13.075	

PRICE CHANGES.

Price changes in merchant bars, structural shapes, plates, wire nails, black sheet pipe, sheets and tin plates are given below, with dates. These are the commodities used in compiling our **composite finished steel.** In some cases the dates named are those upon which prominent producers announced price changes, but more frequently dates are merely those upon which our quotations were changed.

1912			
Sept. 4	Sheets	2.05	to 2.10
" 11	Sheets	2.10	to 2.15
" 26	Bars	1.30	to 1.35
Oct. 8	Plates	1.40	to 1.45
" 8	Shapes	1.40	to 1.50
" 9	Bars	1.35	to 1.40
" 10	Plates	1.45	to 1.50
" 10	Shapes	1.45	to 1.50
" 17	Sheets	2.15	to 2.25
Dec. 10	Wire nails	1.70	to 1.75
1913—			
Jan. 2	Pipe	79%	to 80%
" 14	Sheets	2.25	to 2.35
Feb.1	Plates	1.50	to 1.45
" 1	Shapes	1.50	to 1.45
Mar. 24	Wire nails	1.75	to 1.80
April 14	Pipe	80%	to 79½%
May 27	Pipe	79½%	to 79%
June 2	Wire nails	1.80	to 1.75
" 11	Sheets	2.35	to 2.30
" 18	Sheets	2.30	to 2.25
July 1	Wire nails	1.75	to 1.70
Aug. 9	Pipe (¾-3-in.)	79%	to 80%
" 12	Wire nails	1.70	to 1.65
" 21	Sheets	2.25	to 2.15
" 27	Plates	1.45	to 1.40
Sept. 1	Shapes	1.45	to 1.40
" 22	Sheets	2.15	to 2.05
Oct. 2	Tin plates	3.60	to 3.50
" 3	Wire nails	1.65	to 1.60
" 16	Plates	1.40	to 1.35
" 21	Plates	1.35	to 1.30
" 23	Shapes	1.40	to 1.35
" 24	Sheets	2.05	to 2.00
" 27	Pipe	2½% extra discount	
" 28	Bars	1.40	to 1.35
Nov. 3	Tin plate	3.50	to 3.40
" 7	Bars	1.35	to 1.30
" 17	Sheets	2.00	to 1.95
" 25	Bars	1.30	to 1.25
" 25	Plates	1.30	to 1.25
" 25	Shapes	1.35	to 1.30
" 28	Wire nails	1.60	to 1.55
Dec. 2	Sheets	1.95	to 1.90
" 3	Shapes	1.30	to 1.25
" 4	Plates	1.25	to 1.20
" 11	Bars	1.25	to 1.20
" 22	Shapes	1.25	to 1.20

1913			
Dec. 31	Sheets	1.90	to 1.80
1914			
Jan. 6	Wire nails	1.55	to 1.50
" 7	Sheets	1.80	to 1.85
" 13	Wire nails	1.50	to 1.55
" 23	Sheets	1.85	to 1.90
" 30	Sheets	1.90	to 1.95
Feb. 2	Pipe	80%	to 79½%
" 2	Wire nails	1.55	to 1.60
" 4	Shapes	1.20	to 1.25
Mar. 9	Shapes	1.25	to 1.20
" 20	Plates	1.20	to 1.15
April 1	Bars	1.20	to 1.15
" 8	Sheets	1.95	to 1.90
" 17	Shapes	1.20	to 1.15
" 20	Pipe	79½%	to 80%
" 27	Sheets	1.90	to 1.85
" 29	Tin plates	3.40	to 3.30
May 19	Bars	1.15	to 1.12½
" 22	Wire nails	1.60	to 1.55
" 26	Shapes	1.15	to 1.12½
" 29	Plates	1.12½	to 1.10
" 29	Wire nails	1.55	to 1.50
June 9	Sheets	1.85	to 1.80
" 19	Bars	1.12½	to 1.10
" 19	Shapes	1.12½	to 1.10
July 20	Wire nails	1.50	to 1.55
" 21	Bars	1.10	to 1.15
" 21	Shapes	1.10	to 1.15
" 23	Plates	1.10	to 1.15
" 30	Tin plate	3.30	to 3.35
Aug. 5	Tin plate	3.25	to 3.40
" 6	Sheets	1.80	to 1.85
" 11	Sheets	1.80	to 1.85
" 11	Bars	1.15	to 1.20
" 11	Shapes	1.15	to 1.20
" 14	Tin plate	3.40	to 3.60
" 21	Wire nails	1.55	to 1.60
" 31	Sheets	1.90	to 2.00
Sept 16	Tin plate	3.60	to 3.30
" 26	Sheets	2.00	to 1.95
" 29	Bars	1.20	to 1.15
" 29	plates	1.20	to 1.15
" 30	Tin plate	3.30	to 3.25
Oct. 5	Sheets	1.95	to 2.00
" 7	Shapes	1.20	to 1.15
" 22	Sheets	2.00	to 1.90
" 27	Plates	1.15	to 1.10

COMPOSITE STEEL.

Computation for November 1, 1914.

Pounds.	Group.	Price.	Extension.
2	Bars	1.15	2.875
1	Plates	1.10	1.650
1	Shapes	1.15	1.725
	Pipe (Spec.)	1.95	2.925
1½	Wire nails	1.60	2.400
1	Sheets (28 bl.)	1.90	1.900
½	Tin plates	3.25	1.625
10 pounds			15.100
One pound			1.5100

(Averaged from daily quotations.)

	1910.	1911.	1912.	1913.	1914.
Jan..	1.8625	1.7415	1.5123	1.7737	1.5394
Feb.	1.8475	1.7520	1.4878	1.7625	1.5794
Mar..	1.8475	1.7590	1.4790	1.7646	1.5638
April.	1.8400	1.7600	1.5206	1.7742	1.5337
May	1.8325	1.7510	1.5590	1.7786	1.5078
June	1.7955	1.6817	1.5794	1.7719	1.4750
July.	1.7755	1.6701	1.6188	1.7600	1.4805
Aug.	1.7550	1.6394	1.6784	1.7400	1.5421
Sept.	1.7470	1.6090	1.7086	1.7093	1.5632
Oct.	1.7350	1.5461	1.7588	1.6779	1.5236
Nov.	1.7305	1.4930	1.7750	1.6203	.....
Dec.	1.7380	1.4812	1.7789	1.5558	.....
Year	1.7922	1.6570	1.6214	1.7241	.....

SCRAP IRON & STEEL PRICES.

	Melting Steel. Pitts.	Bundled Sheet. Pitts.	No. 1 R. R. Wrought. Pitts.	No. 1 Cast. Pitts.	No. 1 Heavy Melting Steel. Phila.	Chicago.
1912—						
Year	13.76	11.92	14.16	13.28	13.82	12.30
1913—						
Feb.	14.35	12.00	15.35	14.65	13.25	12.65
Mar.	14.35	11.60	15.35	14.60	13.60	12.50
Apr.	14.25	10.50	15.50	14.50	13.75	12.60
May	13.50	10.00	15.00	14.25	12.25	11.50
June	13.20	9.25	14.25	13.50	11.50	10.75
July	12.50	8.75	13.35	12.30	11.15	10.60
Aug.	12.40	8.25	13.25	12.50	11.85	10.75
Sep.	12.60	8.00	13.00	12.50	12.25	10.60
Oct.	12.25	7.40	13.00	12.40	11.20	10.35
Nov.	11.40	6.75	11.85	12.00	10.30	10.25
Dec.	11.00	6.40	11.65	11.60	9.75	9.25
Year	13.07	9.33	13.91	13.29	12.12	11.21
1914—						
Jan.	11.25	7.00	12.20	12.00	10.50	9.25
Feb.	12.00	8.25	12.80	12.50	11.50	10.70
Mar.	12.25	9.00	12.85	12.40	11.50	10.50
Apr.	12.25	9.00	12.00	12.15	10.80	10.00
May	11.75	9.10	11.75	12.25	10.60	10.00
June	11.75	9.10	11.75	12.25	10.50	9.80
July	11.75	8.50	11.75	11.50	10.60	9.75
Aug.	11.50	8.50	11.50	11.25	10.75	9.75
Sep.	11.25	8.70	10.50	11.25	10.75	9.25
Oct.	10.75	8.00	10.75	11.25	10.00	9.00

COMPOSITE PIG IRON.

Computation for November 1, 1914.

One ton Bessemer, valley	$13.75
Two tons basic, valley (12.50)	25.00
One ton No. 2 foundry, valley	12.75
One ton No. 2 foundry, Philadelphia	14.20
One ton No. 2X foundry, Buffalo	12.50
One ton No. 2 foundry, Cleveland	13.50
One ton No. 2 foundry, Chicago	13.25
Two tons No. 2 Southern foundry, Cincinnati (12.90)	25.80
Total, ten tons	$130.75
One ton	$13.075

Averaged from daily quotations:

	1910.	1911.	1912.	1913.	1914.
Jan...	17.598	14.375	13.420	17.391	13.492
Feb..	17.215	14.340	13.427	17.140	13.721
Mar..	16.702	14.425	13.581	16.775	13.843
April	16.315	14.375	13.779	16.363	13.850
May .	15.750	14.242	13.917	15.682	13.808
June.	15.320	14.032	14.005	14.968	13.606
July .	15.131	13.926	14.288	14.578	13.520
Aug..	14.727	13.874	14.669	14.565	13.516
Sep...	14.612	13.819	15.386	14.692	13.503
Oct..	14.435	13.692	16.706	14.737	13.267
Nov..	14.415	13.532	17.226	14.282	.....
Dec..	14.408	13.430	17.475	13.838	.....
Year.	15.552	14.005	14.823	15.418	.....

UNFINISHED STEEL AND IRON BARS.

(Averaged from daily quotations.)

	Billets. Pitts.	Sheet bars. Pitts.	Rods. Pitts.	— Iron bars, deliv — Phila.	Pitts.	Chi'go.
1913—						
Apr.	27.50	28.00	30.00	1.68	1.65	1.58
May	27.00	27.50	30.00	1.68	1.65	1.55
June	26.50	27.50	29.00	1.61	1.65	1.50
July	26.50	27.50	28.50	1.55	1.65	1.50
Aug.	25.75	26.50*	28.00	1.42	1.62	1.44
Sep.	24.00*	25.00*	27.37	1.33	1.59	1.37
Oct.	22.50	23.25	26.50	1.32	1.54	1.27
Nov.	20.50	21.50	26.00	1.30	1.45	1.15
Dec.	20.00	21.00	25.25	1.25	1.37	1.12
Year	25.55	26.43	28.39	1.51	1.59	1.45
1914—						
Jan.	20.00	20.25*	25.75	1.24	1.35	1.11
Feb.	21.00	22.00	26.00	1.28	1.35	1.14
Mar.	21.00	22.00	26.00	1.28	1.35	1.15
Apr.	20.75	21.75	25.50	1.23	1.31	1.14
May	20.00	21.00	26.00	1.23	1.29	1.10
June	19.50	20.35	25.00	1.23	1.25	1.08
July	19.50	20.00	25.00	1.19	1.25	1.06
Aug.	20.17	21.08	25.25	1.18	1.25	1.07
Sep.	20.75	21.75	26.00	1.18	1.20	1.07
Oct.	20.00	20.70	26.00	1.14	1.20	1.01

* Premiums for Bessemer.

INSTITUTE AT BIRMINGHAM.

Semi-annual Meeting of American Iron and Steel Institute, Birmingham, Ala., October 29.

It is possible to summarize only briefly the excellent papers presented at the Birmingham meeting of the American Iron and Steel Institute.

History of the Iron and Steel Industry in the South.

James Bowron, President of the Gulf States Steel Company, Birmingham, Ala. observed that politically and historically, "The South" embraces the states lying south of Mason and Dixon's line, but metallurgically Florida, Mississippi and Louisiana may be dismissed. Before the war there was nothing but small charcoal iron furnaces, sometimes with bloomaries attached. The war forced the manufacture of cannon up to 18 feet in length and three feet diameter at the breech, with shot and shells up to 180 pounds in weight.

February 28, 1876, the first coke pig iron was made in Alabama, and furnaces were rebuilt to 50 feet in height, making 20 to 25 tons daily. Abram S. Hewitt early stated that Alabama was the only place in the United States where iron could be made to compete with England, the cheapest place in the globe then being the Cleveland region, Yorkshire, England. Mr. (afterwards Sir) Lowthian Bell would not say that Birmingham would supply the world with iron, but did predict that eventually Birmingham would dictate prices to the world.

The depression of 1893 sadly affected the South. A sale was made of 5,000 tons of pig iron at $6.25, spot cash, to meet a payroll, and a cargo of No. 4 iron for Japan sold at $5.75. Eventually export trade furnished some relief, and finally steel making was embraced.

Modern Development of Iron and Steel Industry in the South.

M. P. Gentry Hillman, of Carpenter & Hillman, Birmingham, traced the history of the Ensley plant of the Tennessee Coal, Iron & Railroad Company. The four Ensley furnaces were built in 1888, 80x20 feet, 100 to 130 tons of foundry iron daily per furnace. In 1891 a laboratory was constructed and chemical supervision of raw material inaugurated, increasing the output to 150 tons. In 1892 coal washing inaugurated a radical increase in output, assisted by increasing the hearth diameter and lowering the bosh line, until 200 tons output was reached. In July, 1895, the first basic iron was made in the Birmingham district, by No. 2 Alice furnace, and in November, 1899 the Ensley plant produced basic open-hearth steel. The rapid development of the plant to its present state of efficiency began in 1908 and has recently been consummated, and one cannot but regret that the plant ran so many years without the capital and organization necessary to keep it in the front rank of development.

Under the same caption as the preceding, Thomas K. Glenn, president of the Atlanta Steel Company, Atlanta, Ga., quoted the very hopeful prediction as to iron in the south made by the late Hon. Wm. D. (Pig Iron) Kelly and traced the growth. Extremely low prices for the southern product were made possible only by skimming the cream in mineral deposits, and the real cost of manufacture in Alabama is not greatly different from that at Youngstown and Chicago. The south should manufacture for its own consumption.

The Repair Department of a Modern Steel Plant.

John Hulst, chief mechanical engineer, Carnegie Steel Company, Pittsburgh, referred to the continuity of processes in the steel plant and the enormous capital invested, making it of prime importance that operations be not interrupted, hence success depends largely upon anticipating breakages and in being prepared to repair them. He described in great detail the necessary repair facilities, the iron foundry, steel foundry, roll foundry, brass foundry, etc., pattern shop and pattern storage building, machine shop, electric repair shop, forge shop, pipe shop, structural or boiler shop, roll shop and locomotive repair shop.

The Use of Turbines for Various Purposes.

F. G. Cutler, chief, bureau of steam engineering, Tennessee Coal, Iron & Railroad Company, Ensley, Ala., observed that for some years past there had been few radical changes effected in iron and steel making,

and attention had been directed chiefly to economies, the foremost of these being reduction in power cost, When the steel corporation acquired the Tennessee company all the power was obtained from steam engines, non-condensing. The equipment being largely new it was undesirable to introduce compound condensing steam engines, and low pressure turbo-generators were installed with condensers and cooling towers, two boiler plants were entirely dispensed with and others have been used only occasionally, while electric power is furnished to outside plants, the by-product coke plant, seven coal mines, a street railway and the plant of the wire company. The turbines are described in detail and their performance analyzed.

Under the same caption as above, Alexander L. Hoerr, steam and hydraulic engineer, National Tube Company, McKeesport, Pa., referred to Mr. Cutler's paper, but doubted whether the entire saving of 200,000 tons of coal a year was due entirely to the use of the turbines, when at the same time there was a large increase in the amount of power delivered, and believed there must have been collateral fuel improvements. He discussed the case in detail, and referred to installations of the National Tube Company, concluding that thermal efficiency is only one of many factors; the turbine has its place, but it is not the best prime mover in all instances.

The Use of Titaniferous Ore in the Blast Furnace.

F. E. Bachman, general manager of the MacIntyre Iron Company, Port Henry, N. Y., described at great length the use of titaniferous ore in the blast furnace, and the resultant product. His company owning large deposits of such ore in the township of Newcomb, Essex County, N. Y., determined to try out the ore fully in a blast furnace, and arranged with the Northern Iron Company for the lease of its furnace at Port Henry, N. Y., from January 1 to August 1, 1914, Mr. Bachman having full general supervision, while otherwise the regular furnace staff was retained. It was intended to use the company's concentrating plant, but this proved a failure and it became necessary to ship the ore to Witherbee, Sherman & Company's concentrators at Mineville, N. Y. The constitution and concentration of the ore is described in detail as well as the operation of the furnace, various mixtures of ore being tried. With proper concentration the Sanford ore should run 58 to 60% iron and 9 to 10% titanium oxide. The titaniferous ore was used in various proportions, generally from one-eighth to one-fourth. While users of the iron generally failed to report their experience, while none of the reports received was unfavorable. The iron was a good scrap carrier.

A. H. Lee, superintendent of blast furnaces, Lackawanna Steel Company, furnished a brief contribution on titaniferous ores, expressing his belief that as other ores become exhausted the titaniferous ores would have to be used.

Steam Turbines.

Lief Lee, chief engineer, and Karl Nibecker, steam engineer, of the Youngstown Sheet & Tube Company, presented a supplementary paper on steam turbines. At their works some 34 turbines have been installed. With a turbo blower for one blast furnace and another for their Bessemer converters they have found 10% greater steam consumption working with a 26-inch vacuum, but if abundant cooling water is available and a 28-inch vacuum is obtainable the turbine will give better results than the engine.

One of the strongest advantages claimed for the turbo-blower with a blast furnace is the steadiness of blast, but they doubted whether this was an advantage, the numerous small impacts of the blowing engine being possibly an advantage in encouraging the settling of the stock in the furnace. There is no question, however, as to the advantage of the steadiness of blast in the case of the Bessemer converter.

Repair Department.

H. L. Bodwell, assistant district manager, American Sheet & Tin Plate Company, Vandergrift, Pa., presented a supplementary paper on the repair department in a steel works. Any steel works not large enough to have a separate steel foundry can with advantage make its steel castings from its regular steel product, while the advisability of having an iron foundry in a relatively small plant is doubtful. Thermit, arc and autogenous welding have all been found advantageous in cases. The cutting torch probably has much wider application in a steel plant than the welding torch, for instance, in cutting up cobbles in the bar mill.

BRITISH IRON AND STEEL EXPORTS

According to the Board of Trade returns, in tons of 2,240 pounds:

1913	Pig Iron.	Rails.	Tin Plates.	Total*
Jan. ..	101,964	35,523	46,260	448,186
Feb. ..	63,961	41,849	33,374	363,551
Mar. ..	90,012	34,064	41,579	398,621
April ..	101,413	46,081	41,882	470,040
May ..	97,093	45,025	50,441	463,197
June ..	91,913	52,073	41,483	427,148
July ..	96,135	53,570	43,166	455,626
Aug. ..	101,843	44,637	36,274	396,656
Sept. ..	106,525	26,283	36,572	394,849
Oct. ..	99,588	40,625	40,733	435,534
Nov. ..	100,235	40,140	44,317	430,113
Dec. ..	74,133	40,744	38,840	373,354
Year	1,124.815	500,614	494,921	5,050,919
1914—				
Jan. ..	82,182	57,904	43,164	467,449
Feb. ..	59,832	35,484	41,744	353,861
Mar. ..	92,364	40,207	40,863	414,902
April ..	93,396	30,682	44,296	394,535
May ..	95,037	56,881	48,628	437,648
June ..	88,569	39,700	36,565	356.066
July ..	74,617	43,133	47,237	385,301
Aug. ..	28,342	22,763	21,414	211,605
Sept. .	[illegible]	[illegible]	[illegible]	[illegible]
9 m...	652,132	365,939	347,351	3,250,359

*Includes steel, pig iron, rolled iron and steel plates, and wrought iron manufactures, bolts, nuts, screws, but not finished machinery, boilers, tools, etc.

CAR BUYING.

Freight cars ordered:		
First half 1912	85,000	
Second half 1912	150,000	
Year 1912		235,000
First half 1913	114,000	
Second half 1913	33,000	
Year 1913		147,000
January, 1914	10,000	
February	13,000	
March	7,000	
April	10,000	
May	9,000	
June	15,000	
July	6,800	
August	1,100	
September	95	
October	125	
Ten months, 1914		73,000
Equivalent rate per year		88,000

RAILROAD EARNINGS.

The following table is compiled from the monthly reports of the Interstate Commerce Commission, and cover all railroads in the United States having gross income of $1,000,000 or over per year. The statements are per mile of road operated, and show gross revenue from operations, operating expenses and net operating revenue.

	1911-12			1912-13			1913-14		
	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.
July ...	$1,025	$698	$327	$1,113	$750	$363	$1,161	$814	$348
Aug. ...	1,119	726	393	1,211	776	435	1,219	831	388
Sept. ..	1,131	725	411	1,206	775	430	1,237	832	405
Oct. ..	1,177	74	425	1,311	827	484	1,294	870	424
Nov. ...	1,093	734	360	1,213	806	407	1,163	824	339
Dec. ..	1,046	720	326	1,159	799	360	1,100	800	299
Jan. ..	932	728	203	1,087	803	284	1,005	776	229
Feb. ..	964	710	254	1,011	752	259	900	729	171
Mar. ..	1,051	746	305	1,081	799	282	1,076	782	294
April ..	974	717	257	1,065	802	262	1,021	763	258
May ..	1,030	735	295	1,150	830	320	1,030	779	250
June ...	1,075	737	339	1,135	801	334	1,079	768	311
Totals	$12,605	$8,718	$3,888	$13,730	$9,514	$4,216	$14,267	$9,558	$3,709

Beginning July 1, 1914, a new system was established, whereby the railroads, instead of reporting figures as given above, and then reporting in addition the "net revenue from outside operation" (boat lines, electric lines, cabs, etc.) must include such revenue with total operating revenue. With the fresh figures as reported under the new system are given figures for the month a year earlier, compiled in the same manner, for comparative purposes.

	1913-14			1914-15		
	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.
July	$1,18[illegible]	$8[illegible]	$3[illegible]	$1,124	$785	$339

COPPER.

COPPER IN OCTOBER.

The month opened with the producers price at 12c, delivered 30 days for Electrolytic, but outside sellers at 11¾c, New York cash. The shipments to Holland being held up, Custom House reports showed that shipments were being made in a large way to Norway, Sweden and Denmark, and as we had never in the past exported any copper to these countries, it was evident that the metal was intended for Germany, but doubt whether these exports could be continued, and home trade being very unsatisfactory, market began to weaken, and by October 10th producers were sellers at 11½c delivered 30 days.

Sales were only moderate as Consumers were upset over business prospects and war developments. While a better demand for export was reported and some interest shown in future deliveries by some consumers, market continued to weaken, second hands cutting the cash producers price to 11.25c-11.30c New York, and at these prices considerable interest was shown by dealers and some of the consumers, and a fair amount of business was done for November and December delivery and market gave every appearance of improving on this demand. But the seizure around October 28th by British cruisers of steamers carrying copper to Norway, Sweden and Italy on the plea that the copper they were carrying was intended for Germany and Austria, market became weak and unsettled again, and this unsettlement was further increased by order from Secretary McAdoo that Custom House officials withhold all particulars of exports until thirty days after sailing of vessels. Not only does this indicate that shipments of American copper will be extremely difficult to neutral countries, but that the market will be deprived of information as to what metal is being exported to any foreign country.

The copper market in spite of the curtailment of output to about 50% of normal, is dependent on more exports of copper than France and England or other neutral countries can take for their own use, and it is no wonder that market is greatly unsettled and weak at around 11½c, cash N. Y., and the outlook very dubious.

The complications and uncertainties of the export trade have excluded for the time being all other factors in the copper market, and the entire trade are anxiously waiting to see what the outcome of this matter is going to be.

The developments during the past few days have been briefly as follows:

1—Stoppage by England of American, Italian and Norwegian steamers carrying copper to neutral countries.

2—Order by the Government to Custom Houses to withhold particulars of exports until 30 days after the sailing of vessels.

3—Protest by American producers to State Department against British interference of copper shipments to Italy, Norway

COPPER PRICES IN OCTOBER.

	New York		
	Lake. Cents.	Electro. Cents.	Casting. Cents.
1	12.12½	11.75	11.65
2	12.12½	11.75	11.65
3	.....	.....	.....
4	.....	.....	.....
5	12.00	11.70	11.55
6	12.00	11.65	11.55
7	11.75	11.50	11.37½
8	11.75	11.45	11.35
9	11.75	11.45	11.35
10	.....	.....	.....
11	.....	.....	.....
12	.....	.....	.....
13	11.70	11.40	11.30
14	11.62½	11.35	11.25
15	11.62½	11.35	11.25
16	11.62½	11.35	11.25
17	.....	.....	.....
18	.....	.....	.....
19	11.50	11.25	11.15
20	11.50	11.25	11.15
21	11.50	11.25	11.15
22	11.50	11.25	11.15
23	11.50	11.30	11.15
24	.....	.....	.....
25	.....	.....	.....
26	11.50	11.32½	11.20
27	11.50	11.32½	11.25
28	11.50	11.32½	11.25
29	11.45	11.22½	11.15
30	11.43¾	11.15	11.06¼
31	.....	.....	.....
High	12.25	11.80	11.70
Low	11.37½	11.15	11.00
Average	11.665	11.399	11.295

COPPER.

and Sweden.

4—Refusal of Italian steamship lines to accept shipments of copper unless guaranteed that the metal will not be re-exported from Italy.

5—Reported that Italian Government has placed an embargo on copper, similar to that adopted by Holland.

6—Large increase in insurance rates.

As the exports to Italy in the past 30 days amount to 7,316 tons, or about five times the normal rate, and as the exports to Scandinavia amount to 4,868 tons, whereas we have never exported as much as 1,000 tons a year there before, it is perfectly clear that a good portion if not all of the copper is destined for Germany. This is proved in part by the fact that when Holland prohibited the export of copper our shipments to Holland stopped and the exports to Norway, Sweden and Italy commenced on a large scale. Therefore the only question is whether our State Department can arrange that shipments by neutral vessels via neutral countries will not be disturbed. As copper has been declared by England contraband of war, it is very doubtful whether this can be arranged, and consequently the market is depressed. As a matter of fact, however, the present situation is just what was expected at the outbreak of the war when production was reduced in every direction in anticipation of the complete loss of the German trade.

Exports of Copper From United States.

Compiled y the Nebw York Metal Exchange from Custom House returns, in tons of 2,240 pounds.

	1910.	1911.	1912.	1913.	1914.
Jan.	26,699	29,357	31,229	25,026	36,018
Feb.	25,238	19,492	31,894	26,792	4,634
Mar.	19,963	23,600	27,074	42,428	46,504
April	13,062	27,466	22,591	33,274	35,079
May	20,832	27,670	32,984	38,601	32,077
June	23,430	30,489	26,669	28,015	35,182
July	23,018	36,659	26,761	29,596	34,145
Aug.	27,976	29,018	29,526	35,072	16,459
Sep.	31,733	26,170	23,572	34,356	19,402
Oct.	27,917	22,555	25,020	29,239	.....
Nov.	30,441	26,600	19,171	29,758	.....
Dec.	31,626	37,725	29,474	30,653	.....
Total	301,935	336,801	327,965	382,810	
Av...	25,161	28,066	27,330	31,901	

SHEET COPPER REDUCED TO 16.50c BASE.

The leading manufacturers of sheet copper have reduced the base price of sheet copper ½c per pound to 16.50c, effective October 22d.

Including this reduction the changes in the base price of sheet copper so far this year are given in the following table together with the price of Lake copper at the same dates.

1914—	Sheet Copper.	Lake Copper.
January 2	20.25	15.37½
February 2	20.00	15.12½
March 3	19.75	14.50
May 1	19.50	14.45
May 22	19.25	14.43¾
June 15	19.00	14.18¾
July 27	18.50	13.43¾
August 18	18.00	12.62½
September 1	17.50	12.62½
October 1	17.00	12.12½
October 22	16.50	11.50

The charge for tinning sheets, on one side was reduced ½c on October 22nd to 3.00c per square foot.

COMPOSITE METAL PRICES.

Computation for October 30, 1914:

Pounds.	Metal.	Price.	Extension.
2½	Spelter (St. Louis)	4.90	12.250
4	Lead (St. Louis)	3.37½	13.500
3	Copper (Electro)	11.17½	33.525
½	Tin (New York)	30.75	15.375
10 pounds		.....	74.650
One pound	.....		**7.4650**

Monthly averages:

	1910.	1911.	1912.	1913.	1914.
Jan.	9.084	8.908	9.778	10.987	9.105
Feb.	8.881	8.915	9.677	10.260	9.294
Mar.	8.778	8.797	9.886	10.024	9.026
April	8.568	8.795	10.277	10.198	8.844
May	8.413	8.795	10.468	10.163	8.678
June	8.362	9.154	11.014	9.648	8.431
July	8.338	9.100	11.043	9.398	8.345
Aug.	8.479	9.188	11.092	10.025	9.111
Sept.	8.569	8.928	11.575	10.350	8.067
Oct.	8.747	8.990	11.596	10.029	7.499
Nov.	8.888	9.306	11.372	9.590	.....
Dec.	8.881	9.675	11.219	9.053	.....
Year	8.665	9.046	10.750	9.977	.....

COPPER.

LAKE COPPER PRICES.

Average monthly prices of Lake Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.93	12.75	14.37½	16.89	14.76½
Feb.	13.56½	12.75	14.38½	15.37½	14.98
Mar.	13.71½	12.56	14.87	14.96	14.72
April	13.31	12.41	15.98	15.55	14.68
May	12.98	12.32	16.27	15.73	14.44
June	12.83½	12.63	17.43	15.08	14.15
July	12.62½	12.72	17.37	14.77	13.73
Aug.	12.78½	12.70	17.61	15.79	12.68
Sept.	12.72	12.57	17.69	16.72	12.44
Oct.	12.90	12.47½	17.69	16.81	11.66
Nov.	13.00½	12.84	17.66	15.90	.....
Dec.	12.92	13.79	17.62½	14.82	.....
Av..	13.12	12.71	16.58	15.70	.....

ELECTROLYTIC COPPER PRICES.

Average monthly prices of Electrolytic Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.68	12.53	14.27	16.75½	14.45
Feb.	13.51	12.48	14.26	15.27	14.67
Mar.	13.42	12.51	14.78	14.92½	14.33½
April	12.93	12.15½	15.85	15.48	14.34
May	12.67	12.13	16.16	15.63	14.13
June	12.59	12.55	17.29	14.85	13.81
July	12.36½	12.62½	17.35	14.57	13.49
Aug.	12.56	12.57½	17.60	15.68	12.41½
Sep.	12.49	12.39	17.67	16.55	12.09
Oct.	12.77½	12.36	17.60	16.54	11.40
Nov.	12.87½	12.77	17.49	15.47	.....
Dec.	12.72	13.71	17.50	14.47	.....
Av..	12.88	12.55	16.48	15.52	.....

CASTING COPPER PRICES.

Average monthly price of Casting Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.60	12.39	14.02	16.57	14.27½
Feb.	13.41	12.33	14.02	15.14	14.48
Mar.	13.31	12.20	14.53	14.76	14.18
April	12.87	12.07	15.72½	15.33	14.18
May	12.62	12.08	16.01	15.45½	14.00
June	12.52	12.40	17.08	14.72	13.65
July	12.36	12.49	17.00	14.40	13.34½
Aug.	12.48	12.42	17.35	15.50	12.27
Sept.	12.46	12.23	17.51	16.37½	12.00
Oct.	12.70	12.21	17.44	16.33	11.29
Nov.	12.82	12.61	17.34	15.19	.....
Dec.	12.64	13.56½	17.34	14.22	.....
Av..	12.81	12.42	16.29	15.33	.....

VISIBLE SUPPLY OF COPPER.

Visible supply of copper at the end of each month based on the returns of the Copper Producers' Association and H. R. Merton & Company.

	Stocks in American Producers' hands.	European Visible Supply.	Combined Visible Supply.
1910—			
June ..	168,386,017	232,863,680	401,249,697
July ..	170,640,678	222,295,360	392,936,038
Aug. ..	168,881, 45	218,413,440	387,294,685
Sept. ..	148,793,714	210,472,640	359,266,354
Oct. ..	139,261,914	198,065,280	337,327,194
Nov. ..	130,389,069	193,200,000	323,589,069
Dec. ..	122,030,195	187,705,280	309,735,475
1911—			
Jan. ..	142,439,490	*236,976,320	379,415,810
Feb. ..	156,637,770	226,210,880	382,848,650
Mar. ..	162,007,934	223,030,080	385,038,014
April ..	165,555,908	212,280,320	377,836,228
May ..	165,995,932	202,413,120	368,409,052
June ..	157,434,164	195,937,280	353,371,444
July ..	137,738,858	192,584,000	330,322,858
Aug. ..	133,441,501	191,215,360	324,656,861
Sept. ..	140,894,856	191,945,600	332,840,456
Oct. ..	134,997,642	176,816,640	311,814,282
Nov. ..	111,785,188	164,151,680	275,936,868
Dec. ..	89,454,695	158,329,920	247,784,615
1912—			
Jan. ..	66,280,643	153,820,800	220,101,443
Feb. ..	62,939,988	141,135,680	204,075,668
Mar. ..	62,367,557	136,808,000	199,175,557
April ..	65,066,029	134,155,840	199,221,869
May ..	49,615,643	117,797,120	167,412,763
June ..	44,335,004	107,817,920	152,152,924
July ..	50,280,421	113,290,240	163,570,661
Aug. ..	46,701,374	113,783,040	160,484,414
Sept. ..	63,065,587	107,403,520	170,469,107
Oct. ..	76,744,964	103,801,600	180,546,564
Nov. ..	86,164,059	96,938,240	183,102,299
Dec. ..	105,312,582	96,857,600	202,170,182
1913—			
Jan. ..	123,198,332	96,546,240	219,744,572
Feb. ..	122,302,198	100,067,520	222,369,718
Mar. ..	104,269,270	†100,965,760	205,235,030
April ..	75,549,108	98,374,720	173,923,828
May ..	67,474,225	90,018,880	157,493,105
June ..	52,904,606	85,559,040	138,463,646
July ..	53,594,945	79,804,480	133,399,425
Aug. ..	38,314,037	76,260,800	114,574,837
Sept. ..	29,793,094	62,314,560	92,107,654
Oct. ..	32,566,382	57,854,480	90,420,862
Nov. ..	47,929,429	59,935,680	107,865,109
Dec. ..	91,438,867	66,124,800	157,563,667
1914—			
Jan. ..	87,296,685	58,114,560	145,411,245
Feb. ..	78,371,852	60,374,720	138,746,572
Mar. ..	64,609,319	58,528,960	123,138,279
April ..	70,337,001	65,582,720	135,919,721
May ..	84,342,641	72,508,800	156,851,441
June ..	106,110,663	74,527,040	180,637,703
July ..	Statistics suspended indefinitely.		

* Hamburg and Rotterdam stocks included.
† Bremen stocks included.

TIN

TIN IN OCTOBER.

October opened firm at 31½c, and for a few days remained around that price although the statistics published October 2nd were not altogether satisfactory, as the Straits shipments for the month of September proved to be much larger than expected, namely 4,973 tons. This was explained as resulting from an accumulation in August created by finances and freight room, but it was positively stated that from that time the reduced output in the tin fields would be seen in much smaller shipments, and this is being confirmed as the shipments for October are about 4,000 tons. November and December shipments are expected to average about 3,500 tons.

The market was very quiet, consumers showing very little interest, and there was a steady decline until 28½c was reached in the middle of the month, the feature at that time being apparently liquidation from London. The low price however, attracted consumers, and the market improved until 29c was reached on the 20th. At that time the trade was startled with news that steamer "Trolius" en route from London to Singapore carrying 975 tons had been sunk by the German cruiser "Emden". The market within the next two days advanced 2½c on comparatively little buying. But part of this advance was later lost, and the market closes for the month at 30¾c for spot. Stocks here very small, but December and January was offered at the close at 30½c with buyers showing no interest in futures.

The position with consumers seems to be that their trade is dull and shows no signs of improving, and while they do not deny the obstacles and dangers that exist for future supplies, still they believe that in some way these obstacles will be overcome, and that although present price is around 31c to 32c as compared with 44.32c in 1913, 46.43c in 1912, 42.68c in 1911 and 34.27c in 1910, still that tin is likely to remain at around these prices, as London speculators and producers are in no position to do business or exploit the situation of reduced output and dangers of transportation from the East.

It has become known in the trade that about 1,000 tons of tin has arrived lately on the Pacific coast from the East Indies, and of course the belief is that it was imported by the U. S. Steel Corporation. If this is the case it is quite natural, and illustrates how alive they were to the serious danger attending getting tin from the East via the usual ocean highway, with German cruisers about. This large consumer could not afford to take the chances our other consumers have taken, and their superior sources of information and their action, proves that we have not in the past few weeks been exaggerating the dangers attending getting tin from the East Indies to the United States, and that this large consumer was ready to incur a heavy increased cost rather than take what was a serious risk.

An importer or dealer can protect himself against loss of his tin by war insurance, but in the case of the consumer he wants the metal, and not the value of the metal. This entire East Indian transportation subject is a serious one, and until it is made safe the market is open to sensational developments at any time.

TIN PRICES IN OCTOBER.

New York

Date.	Cents.	Date.	Cents.
1	31 12½	17	.....
2	31 25	18	.....
3	.....	19	28.87½
4	..	20	29.00
5	31.20	21	30.50
6	31.00	22	31.62½
7	30.80	23	31 75
8	30.50	24	.....
9	30 30	25	.....
10	..	26	31.37½
11	....	27	30.75
12	..	28	30.50
13	30.00	29	30.50
14	29.50	30	30.75
15	28 50	31	.....
16	28.50		

High	31.75
Low	28.50
Average	30.395

TIN.

VISIBLE SUPPLIES.

Total visible supply of tin at the end of month.

	1910.	1911.	1912.	1913.	1914.
Jan.	23,024	18,616	16,707	13,971	16,244
Feb.	21,288	17,260	14,996	12,304	17,308
Mar.	20,203	16,682	15,694	11,132	16,989
Apr.	17,932	14,441	11,893	9,822	15,447
May.	18,998	15,938	14,345	13,710	17,862
June.	15,700	16,605	12,920	11,101	16,027
July.	17,433	16,707	13,346	12,063	14,167
Aug.	17,943	16,619	11,285	11,261	14,452
Sept.	18,999	16,672	13,245	12,943	14,613
Oct.	18,183	14,161	10,735	11,857	.....
Nov.	18,877	16,650	12,348	14,470	.....
Dec.	17,194	16,514	10,977	13,893	.....
Av.	18,815	16,404	13,207	12,377	.....

SHIPMENTS FROM THE STRAITS.

Monthly shipments of tin from the Straits Settlements to Europe and United States, as per Powell's returns:

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	5,733	5,895	4,290	4,018	6,050	5,290
Feb.	4,033	4,147	4,290	5,260	4,660	6,520
Mar.	3,380	2,877	4,510	5,150	4,810	4,120
Apr.	4,904	4,025	3,140	4,290	4,400	4,930
May	5,184	4,965	4,310	5,760	6,160	6,900
June	4,618	4,120	5,050	4,290	4,820	5,870
July	5,644	5,040	4,660	4,580	4,770	4,975
Aug.	4,702	5,700	4,680	5,210	5,990	3,315
Sep.	5,081	4,220	5,150	5,430	5,160	4,973
Oct.	4,864	4,480	4,450	4,450	5,020	.....
Nov.	5,530	4,840	5,020	5,600	5,560	.....
Dec.	5,835	4,270	5,970	4,980	5,110	.....
	58,425	54,579	55,470	59,018	62,550	
Av.	4,869	4,548	4,622	4,918	5,213	

CONSUMPTION IN THE UNITED STATES.

Monthly deliveries of tin in the United States exclusive of Pacific Coast.

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	3,200	3,500	3,200	3,700	3,700	3,600
Feb.	2,700	3,600	3,800	4,050	3,500	3,300
Mar.	3,900	4,000	5,100	4,000	5,900	4,450
Apr.	4,904	4,025	3,140	4,290	4,400	4,900
May	3,900	3,600	3,400	4,250	3,350	3,800
June	3,200	5,000	2,900	2,850	3,800	3,650
July	3,600	3,800	4,300	5,150	3,900	3,900
Aug.	3,300	3,700	3,800	4,300	3,600	2,900
Sep.	3,200	3,300	4,200	3,600	3,100	3,600
Oct.	3,700	3,750	3,700	4,850	3,700	3,700
Nov.	4,000	3,600	3,100	4,300	2,800	.....
Dec.	3,000	4,000	3,700	4,050	3,100	.....
	41,500	45,350	44,300	49,500	43,900	
Av.	3,458	3,779	3,692	4,125	3,658	

MONTHLY TIN STATISTICS.

Compiled by New York Metal Exchange.

	Sept. 1914.	Aug. 1914.	Sept. 1913.
Straits shipments			
To Gt. Britain...	3,453	2,502	3,160
" Continent ...	40	18	760
" U. S.	1,480	795	1,240
Total from Straits	4,973	3,315	5,160
Australian shipments:			
To Gt. Britain...	50	150	350
" U. S.	nil	nil	nil
Total Australian.	50	150	350
Consumption:			
London deliveries	1,269	954	1,451
Holland deliveries	1,482	149	1,342
United States*...	3,600	2,900	3,100
Total	6,351	4,003	5,893
Stocks at close of month:			
In London	4,006	3,835	1,921
" " (Stand)	2,744	3,188	†
" Holland	375	157	1,755
" U. S.*	1,603	1,077	2,542
Total	8,728	8,257	6,218
Afloat at close of month:			
To London	3,555	3,460	3,727
" Holland	.....	10	183
" U. S.*	2,330	2,725	2,815
Total	5,885	6,195	6,725
	1914. Sep. 30,	1914. Aug. 31,	1913. Sep. 30,
Total visible supply	14,613	14,452	12,943

* Exclusive of Pacific ports.
† Not reported.

TIN AND SILVER. (Monthly Averages.)

	New York					
	Tin			Silver		
	1912.	1913.	1914.	1912.	1913.	1914.
Jan.	43.24	50.45	37.74	56.22	62.93	57.56
Feb.	43.46	48.73	39.93	59.04	61.64	57.50½
Mar.	42.86	46.88	38.08	58.37	57.87	58.07
Apr.	44.02	49.12	36.10	59.23	59.49	58.52
May	46.12	49.14	33.30	60.88	60.36	58.18
June	47.77	44.93	30.65	61.29	58.99	56.47
July	44.75	40.39	31.75	60.66	58.72	54.68
Aug.	44.75	41.72	50.59½	61.61	59.29	54.34
Sep.	49.18	42.47	32.79	63.08	60.64	53.29
Oct.	50.11	40.50	30.39½	63.47	60.79	50.65
Nov.	49.90	39.81	.....	62.79	58.99	.....
Dec.	49.90	37.64	.....	63.37	57.76	.....
Year	46.434	4.32	.....	60.83	59.79½	.....

LEAD.

LEAD IN OCTOBER.

The lead market in October proved very quiet, 3.75c New York, 3.62½c St. Louis, and was very dull and depressed, with a very unsatisfactory consumptive demand. It seems that the price fighting extremely low would go lower unless production was decreased. On October 6th the Trust announced a reduction of $3.00 a ton to 3.60c New York, which was the second reduction within two weeks, and which put the market down to ten points within the lowest price in 15 years. The feeling in the trade was that the price had been lowered to force a reduction in the output, and that if the independent producers did not heed this warning they would be obliged to take still lower prices. The independent interests however, immediately cut the new Trust price which resulted in the Trust announcing the following day, October 7th, a further reduction of $2.00 a ton to 3.50c New York. This low price seems to have cured the situation, resulting in reduced operations and a complete stoppage of underselling by the independents.

There has been a fair export demand during the month with no change since in price. At the close there has been some pretty good buying by consumers, on the belief, which is probably well-grounded, that the market will not go any lower. It has been impossible to buy for deliveries beyond early December except at prohibited premiums, and the attitude of some of the largest consumers now is to carry a good stock, as the interest charge would figure only about one-eighth of a cent per pound for carrying the metal for six months. Consumption is too poor at present and the outlook for business too uncertain to justify a belief in an early advance in price, but lead is certainly now on a safe basis, and there does not seem to be much chance of its going any lower.

LEAD (Monthly Averages.)

	—New York*—			St. Louis—		
	1912.	1913.	1914.	1912	1913.	1914.
Jan.	4.41	4.45	4.11	4.34	4.20	3.99½
Feb.	4.04	4.35	4.06	3.99	4.20	3.95
Mar.	4.07	4.35	3.97	4.06	4.21	3.83
Apr.	4.20	4.40	3.82	4.14	4.25½	3.70
May	4.20	4.36	3.90	4.09	4.22	3.81
June	4.39½	4.35	3.90	4.31	4.21	3.80
July	4.73	4.37	3.90	4.60	4.25	3.75
Aug.	4.56½	4.63	3.90	4.46	4.56	3.73½
Sep.	5.05	4.75	3.86	4.94	4.62	3.67
Oct.	5.10	4.45	3.54	4.91	4.31	3.50
Nov.	4.69	4.34		4.50	4.18	
Dec.	4.36	4.06		4.19	3.94	
Year	4.48½	4.40		4.38	4.26	

* Trust price.

SPELTER AND LEAD PRICES IN OCTOBER.

	— Spelter —		— Lead —	
	New York.	St. Louis	*New York	St. Louis
1	5.10	4.90	3.70	3.55
2	5.00	4.82½	3.70	3.55
3				
4				
5	5.00	4.80	3.70	3.55
6	4.95	4.75	3.60	3.45
7	4.90	4.72½	3.50	3.35
8	4.85	4.67½	3.50	3.37½
9	4.85	4.65	3.50	3.37½
10				
11				
12				
13	4.80	4.60	3.50	3.37½
14	4.80	4.60	3.50	3.37½
15	4.80	4.62½	3.50	3.36¼
16	4.85	4.67½	3.50	3.36¼
17				
18				
19	4.90	4.72½	3.50	3.36¼
20	5.12	4.92½	3.50	3.36¼
21	5.12	4.95	3.50	3.36¼
22	5.15	5.00	3.50	3.35
23	5.15	4.97½	3.50	3.35
24				
25				
26	5.12½	4.95	3.50	3.35
27	5.12½	4.95	3.50	3.35
28	5.12	4.92½	3.50	3.37½
29	5.07	4.90	3.50	3.37½
30	5.07	4.90	3.50	3.37
31				
High	5.20	5.00	3.70	3.55
Low	4.75	4.60	3.50	3.35
Average	4.995	4.811	3.564	3.395

* Outside market.

SPELTER.

SPELTER IN OCTOBER.

October opened at 5.10 f.o.b. East St Louis, the market showed reactionary tendencies, and on active competition for the few orders offering and no export demand, there was a steady decline until the middle of the month when 4.80 was reached. At that time there was what looked like a concerted effort by important interests here to stop the decline and improve prices, and England seeing prices firmer and being in need of further supplies from this side became a buyer, and in a few days market advanced to 5.12½c or higher than the month opened. Other reasons for the improvement was the news of curtailment in output, and the closing down of the Butte and Superior mines. Since then the export demand has again fallen off and with it the market. The month closes easy at 4.90c f.o.b. E. St. Louis.

The export demand has been the salvation of the spelter market, since the war broke out. In that time we have shipped abroad about 24,000 tons. Without these foreign orders it was a question how low the market might have sunk, as stocks in producers hands were the largest on record, and in spite of these exports is still large. Also there has been a most unsatisfactory home consumption on account of the extreme depression in the iron and brass trades.

The future of the market is bound up in what are to be the developments in the foreign demand, as in spite of what curtailment in output has taken place, production is in excess of our consumption, and the outlook for the next two or three months in this direction very unpromising.

RECEIPTS AND SHIPMENTS OF SPELTER.

[illegible] and shipments of lead and spelter at St. Louis for the month of October, [illegible] Merchants' Exchange were as follows:

Spelter.

	Slabs.
[illegible]	
October, 1914	329,320
October, 1913	[illegible]
[illegible]	
[illegible]	[illegible]
[illegible]	[illegible]

ALUMINUM IN OCTOBER.

The month opened at 18c to 18½c New York for 98 to 99% with reports that exports of aluminum had been prohibited from England by the British Government, but as our home production was fully able to take care of our requirements and likely to so continue, the market was unaffected.

Market was dull and stagnant on the surface all through the month at 18c to 18½c New York, at which the month closes, but undoubtedly a fair amount of business has been done between the producers and the automobile buyers at private terms.

Waterbury Averages for October.

Lake Ingot Copper 12.25
Brass Mill Spelter 5.23

	— Copper —		— Spelter —		
	— Lake —		Electro —		
	1913.	1914.	1914.	1913.	1914.
Jan..	17.00	14.75	....	7.56	5.54
Feb..	15.50	15.12	....	6.81	5.70
Mar..	15.12½	15.00	14.50	6.56	5.59
April	15.75	14.87½	14.37½	6.08	5.50
May..	15.87½	14.75	14.25	5.77	5.38
June.	15.87½	14.37½	13.87½	5.50	5.37
July.	14.75	14.12½	13.62½	5.61	5.26
Aug. .	15.62½	13.00	.....	5.99	5.66
Sept..	16.87½	12.87½	.....	6.13	5.91
Oct..	16.87½	12.25	.....	5.74	5.23
Nov..	16.25	....	.....	5.60	....
Dec..	15.00	...	.....	5.44	....
Year.	15.85	.....	.....	6.06½	....

SPELTER (Monthly Averages.)

	—New York—			— St. Louis —		
	1912.	1913.	1914.	1912.	1913.	1914.
Jan.	6.55	5.25	5.33	6.40	7.04	5.14
Feb.	6.50	6.49	5.46	6.55	6.25	5.25
Mar.	6.93	6.29	5.35	6.74	6.08	5.15
Apr.	6.87	5.79	5.22	6.66	5.59	5.03
May	6.89	5.51	5.16	6.71	5.31	4.96
June	7.05	5.23½	5.12	6.85½	5.05	4.93
July	7.23	5.41	5.03	7.04	5.23	4.84
Aug.	7.13	5.80	5.63	6.94	5.64	5.45
Sep.	7.55	5.83	5.52	7.37	5.65	5.33
Oct.	7.61	5.47	4.99½	7.39	5.27	4.81
Nov.	7.50	5.34	....	7.32	5.15	.
Dec.	7.36	5.22	....	7.19	5.03	....
Year	7.11	5.80	....	6.90	5.61	....

ANTIMONY

ANTIMONY IN OCTOBER.

The antimony market has been active and excited during the month, and a large business has been done for both spot and futures at rapidly advancing prices. The cause for this has been large purchases from Russia which has resulted in about 820 tons being shipped to that country this month from New York, being the first time we have ever shipped the metal to Europe.

The market opened quiet, Cooksons at 10¼c, Halletts 9¼c. Hungarian and Chinese grades 8¾c, but the market immediately became excited on news that England was buying large quantities of antimony in China and Japan, also in this market, and that English owned stocks held here had been ordered shipped back to England. This caused an advance of 2c a pound on October 5th. The situation was that all three of the English antimony makers had been booked up by the English and Russian Government, and would not be able to take on any further business during the remainder of the year. Dealers in this market immediately became buyers and a large business was done for shipment from Japan. The situation was further excited by large purchases in this market for account of the Russian Government which have continued, and by the middle of the month the price had reached 12c for Cooksons, 11¾c for Halletts, 11c for ordinaries. During the week that followed, the market was quiet but around the 20th of the month export buying was resumed, with news that for the first time on record America had shipped antimony to Europe, and by October 26th the market had advanced to 16½c for Cooksons, 15½c for Halletts, 14½c for ordinaries. A further advance took place to 17½c for Cooksons, 16c for Halletts, 14½c for ordinaries, at which the market closes.

The exports of antimony on this foreign export movement has been about 820 tons which has completely depleted stocks here.

ANTIMONY AND ALUMINUM.
(Monthly Averages.)

	Cooksons Antimony, New York			98–99% Aluminum		
	1912	1913	1914	1912	1913	1914
Jan.	7.59	9.66	7.51	18.75	26.31	18.86
Feb.	7.22	9.31	7.24	18.75	26.20	18.80½
Mar.	7.52	9.03	7.23	18.94	26.72	18.30
Apr.	8.00	9.00	7.22	19.58	26.91	18.08
May	8.00	8.77	7.59	20.70	25.95	17.93
June	8.00	8.63	7.21	21.92	24.79	17.82
July	8.26	8.47	7.11	22.09	24.34	17.59
Aug.	8.51	8.38	16.23	23.75	22.73	20.38
Sep.	8.84	8.30½	12.19	24.50	22.00	19.28½
Oct.	10.22	7.66	13.87	26.83	20.32	18.25
Nov.	10.31	7.52		27.06	19.49	
Dec.	10.06	7.45		26.46	18.85	
Year	8.51	8.32		22.52	23.63	

ALUMINUM, ANTIMONY AND SILVER PRICES IN OCTOBER.

	Aluminum	Antimony Cooksons	Antimony Halletts	Antimony Hungarian	Silver New York	Silver London
Day	Cts.	Cts.	Cts.	Cts.	Cts.	d.
1	18.25	10.50	9.25	8.25	53⅜	24
2	18.25	10.50	9.25	8.25	52½	24
3					52⅝	23⅞
4						
5	18.25	11.75	10.75	9.75	52⅝	24⅛
6	18.25	13.00	12.00	11.00	52⅝	24
7	18.25	13.00	12.00	11.00	52½	24
8	18.25	13.00	12.00	11.00	52⅝	23⅞
9	18.25	13.00	12.00	11.00	51¾	23⅞
10					51¾	23⅝
11						
12						23⅝
13	18.25	13.00	11.75	10.75	51⅝	23½
14	18.25	13.00	11.75	10.75	51½	23½
15	18.25	12.50	11.50	10.50	51⅝	23⅝
16	18.25	12.00	11.00	10.00	50⅞	23⅛
17					50⅞	23⅛
18						
19	18.25	12.75	11.75	10.75	50½	23
20	18.25	13.75	12.75	11.75	50⅛	22¾
21	18.25	14.50	13.25	12.25	50	22½
22	18.25	14.75	13.75	13.00	50	22⅜
23	18.25	15.25	14.25	13.25	49⅞	22⅜
24					49⅞	22½
25						
26	18.25	16.25	15.75	14.25	48⅞	22½
27	18.25	16.25	15.75	14.25	48¼	22½
28	18.25	17.50	16.00	14.25	48½	22⅝
29	18.25	17.50	16.00	14.25	48½	22⅝
30	18.25	17.50	16.00	14.25	48⅛	22⅝
31					48⅛	22⅝
High	18.50	18.00	16.50	14.50	52⅝	24⅛
Low	18.00	10.00	9.00	8.00	48⅛	22⅝
Av..	18.25	13.869	12.786	11.643	50.65	23.199

REVIEW OF THE JOPLIN ORE MARKETS FOR OCTOBER.

Under pressure zinc ore prices reached its lowest point in the middle of October when the average of all grades was but $34.54, and the lowest base reported was around $32. This is the lowest market reported for some time and acted as a drastic reducer of output in every camp of the district. More mines closed down in the month of October than for any similar period of the year and rapidly brought down the weekly production to 4,000 to 4,500 tons per week as against a regular output of 5,000 to 5,800 tons. Simultaneously came the announcement of the closing down of the Butte and Superior mine at Butte and from then on there was a rapid rise in the price of ores. The close of the month saw as high as $46 base paid for good grades of zinc blende while the $45 mark was generally current. .

Another thing noticeable was. the shipments of ore were but a trifle over 4,000 tons weekly and agreed practically with the output of the district. The surplus stocks showed a decrease of 300 tons during the month while at its end the demand for high grade ores was far from satisfied. The month therefore ended as far as the Joplin district was concerned in much better condition than it began and with a better outlook for the next two months. It seems doubtful whether the district will greatly increase its output unless prices stay for quite a while above $45 both for economic reasons as well as the fact that the winter season precludes any possibility of great increase. The fact also that the Butte and Superior will likely be down for 60 days means a radical readjustment of the ore situation of the country in which the ore producers will have done their part toward reducing the surplus stocks and bringing production within a more normal range of demand. If the smelters do as well in the exportation of their surplus stocks of metal within the same time the year should be closed with little or no surplus stocks in America of either ores or spelter.

The readjustment of lead ore production to consumption has also been a feature receiving the attention of the lead ore producers of Missouri. In the southeast district the large producers have in some instances closed down their large plants entirely and others have curtailed heavily. The same is true of the southwest district The curtailment is already evident. The lowering of the price of pig lead and ores forced this reduction quickly.

The demand of the Joplin zinc ore producers that some investigation be made of the manipulation of spelter and zinc ore prices has been answered by the Department of Commerce by sending investigators to the Joplin district to make a thorough examination of these charges. The investigation is already well under way locally. It is understood also that the former investigation of the Department of Justice which related solely to the interlocking directorates and the trust proclivities of certain branches of the zinc smelting industry to control prices and output by unified action and through controlling the sale of spelter through the agency of sales agents for independent smelters will now be taken up again and carried to completion. Ore producers openly declare that the recent bulge in the ore market was due solely to the desire on the part of this combination to boost the price of spelter and unload it for export at a high price. After unloading the price for ores was put down just as ruthlessly till these smelters could again load up on cheap ores. When this is accomplished the same tactics are again employed and ore prices shoved up to justify the consumer of spelter the prices asked for the metal. The ore producers demand that such a combination is both injurious to them and to the consumers and they desire the evidence to be gathered and the guilty punished. The government has responded to the ore producers' plea to make the needed investigation and if the facts warrant it, it is expected the proper indictments will be brought

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We Wish All Our Readers
A MERRY CHRISTMAS.

THE NOVEMBER ADVANCE IN METALS AND WHAT IT INDICATES.

During November there has come over the metal trade a complete change of sentiment, and on purchases by the larger consumers and dealers, the following advances have taken place.

Tin, 2½c per lb., or 8.13%
Copper, 1⅜c per lb., or 12.30%
Spelter, ⅜c per lb., or 7.50%
Lead, 30c per 100 lbs., or 8.60%

and the movement still continues for in the first week in December there has been a further advance of

¼c on Tin
⅜c on Copper
⅛c on Spelter

and a firm market on lead with indications of better prices:

In the case of lead and spelter a contributory cause has been the large buying for export, but in copper the export demand has been limited by the difficulties attending shipments to all European countries except Great Britain and France and the impossibility of shipping to Germany who is our largest foreign customer. Under the circumstances it is remarkable that

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copper should have advanced, and it is important that it has because this metal next to iron and steel is, we think, the most important commodity by which to judge a change in fundamental conditions. The explanation is that sentiment has completely changed in copper, and in every other metal, except iron and steel. It indicates to us that confidence and recovery has commenced in the mind of business, and that before long it will be shown in increased business and operations in commodities that are outside the realm of speculation and less sensitive to the mental process. These commodities, such as iron and steel, are slower to move but from their heavier weight and importance, when they do start are more difficult to stop.

Still even in the case of iron and steel we think we see indications that the industry has "rounded the turn," and that the only question is whether the recovery will be slow or rapid, or whether some unfavorable feature may develop before all the adverse features can be positively said to have been left behind.

The buying movement in pig iron which in the past three weeks has easily been in excess of 400,000 tons, and is probably nearer half a million tons, is spectacular, considering the quietness that preceded it. This pig iron movement is not in itself a positive proof that the steel industry has started a recovery, but there are elements in the steel market itself that indicate that such is the case. In the steel market the mills seem to have concluded that the time to act has arrived. For several weeks they had been apathetic, taking business offered, often cutting prices to get it, but making no actual campaign for business. Now they are disposed to solicit business, and they are setting prices such as to assure possible buyers that they cannot be making a mistake.

One cause for the advance in the metal market has been a recovery in speculation in the leading market of the world, London. Up to a month ago speculative interest on the London Metal Exchange and in fact every where else, had been flat on its back. Lately there is a great recovery, and it is shown in the favorite speculative counter in London, Pig Tin, which has advanced £30 per ton since the opening of the London Metal Exchange.

Speculation is based on what is to happen in the future, and not on what is happening at the present, and such movements, as we speak of, always precede a change from extreme depression to more normal things. Sometimes the movement proves to be a false start, and that the future has not been correctly prognosticated. We do not believe it will be so in this case, and we further believe, that those who close their eyes to what is immediately under their nose, ignore the slackness if it exists in their own trade, and base their purchases on a great movement to take place in business after the New Year, will have cause to congratulate themselves.

We believe the change in the metal trade indicates a great revival in general business in this country, in fact that it has begun, and after another month, there will be some astonishing developments.

The argument that the continuation of the war will prevent this we do not consider well taken. Enormous amounts of money are being raised by

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all the countries of Europe and in the case of those at war are being lavishly thrown into trade in the purchases of all kinds of commodities.

That is where the extraordinarily large loans England has negotiated are going and will continue to go, and we in this country are beginning to feel it in the orders some of our industries are receiving. There can be no national economy in war time, that has to wait until the crisis is over. It is not impossible that something approaching a boom may develop. It may not be a healthy one—it may be only a war market, but not the less real. We saw something of the kind in our Civil War.

Of course, the enormous economic loss and disaster to the world caused by the war must be felt, and recovered by years of economy, but in the meantime under the excitement of war and the enormous sums being spent, we are facing a period of activity and higher prices in all commodities, and as we said before we believe the metal trade last month registered that it has begun. The outlook is that the financial breakdown has been recovered, the success of the foreign loans proves there is plenty of money, capital and everything that constitutes wealth. Outside of the enormous expenditures created by the war there has been a big vacuum created for the normal requirements of this country. These requirements cannot much longer be resisted. It is quite natural that after the heavy advance of the past 30 days, to expect reactions, but that the trend will continue toward higher prices is our firm conviction.

HOW A GREAT EMERGENCY WAS HANDLED AND ITS LESSON.

The story of the collapse in finances and business the world over that followed the outbreak of the greatest war on record, will long excite the interest and study of economists, and with time there will grow a greater appreciation of the monumental and unprecedented situation that was created almost in a day, and the wonder that it was not followed by a catastrophe such as would have wrecked the entire financial world.

In what will go on record as the most remarkable financial speech ever made, remarkable for the occasion and for the facts and figures it disclosed, Lloyd George, the Chancellor of the Exchequer, with the authority of the British Government, gave before the House of Commons on November 27th—a concise presentation of the enormous burden that was thrust on the English nation, and the reason why the responsibility for the financial welfare of the world and business fell on their shoulders. The statements he made were not the opinions or estimates of an ordinary authority, but as we said before, were backed with all the authority of the English Government. They were founded on the facts and statistics of business and finance for which England is justly noted. The sneer that the English are "a nation of shopkeepers," carries with it also the compliment that if they are, they know how to "keep shop," and that they realize the importance of statistics, the knowing how their trade and affairs stand and the necessity of protecting them. That realizing the overwhelming importance of trade to the happiness and welfare of the nation, the interests of business have always commanded the first care of those they elect to make their laws and carry on the government. No doctrinaire, sentimental or socialistic theories are allowed to have any place when they conflict with the real and best business interests of the nation. Even England's policy of free trade is no fetish or economic article of faith, and would be changed, were it not that her interest in obtaining her raw materials cheaply for the manufactures she produces and exports, make this policy the best for her interest.

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English Legislatures Understand Business Interests.

It is well that in this crisis the world found English legislators in the closest possible touch with business, and hence able to scientifically and practically handle the situation, or the story and its sequel would have been a very different one than what it is to-day, when the extraordinary dangers that threatened have been wonderfully averted, and when a normal condition is being rapidly restored.

But it was not to draw a contrast with our own legislators and their equipment for handling business that we have diverged from our theme, but to bring home how it has been demonstrated, that in such a crisis the ordinary politician would have been helpless unless his idea of politics carried what the very word means "belonging to the citizen," "devoted to a scheme or system rather than to a principle," "hence good sense, wise, prudent, sagacious and intensely practical."

In a few sentences this representative of the English Government, and hence under the circumstances that happily rule the representative of English business, gave the reason why the overwhelming burden fell on their shoulders, how the entire credit and power of the nation were thrown behind the financial and business situation, and how it was successfully handled. To a business man it is glorious and thrilling reading, and the entire world owes a debt to the courage and extraordinary ability shown in the face of an unprecedented emergency.

Discussing the situation, Lloyd George said:—

"We had not merely our own business to run, but we were an essential part of a machine that ran the international trade of the world. We carried half the produce and provided the capital that moved this produce from one part of the world to another, not merely for ourselves but for other countries."

As one instance of the ramifications of the British financial system, wherein paper signed in London becomes a part of the world finance, Mr. Lloyd-George said that the United States owed Great Britain approximately $5,000,000,000, "but we could do no business." In this figure we understand he includes the British investments in American securities and since his speech the exact words heard have been received, they read: "America, I suppose, owes us nearly a thousand millions (of pounds) in fixed and floating capital, but we could not buy. It was impossible to do any business. Why? The exchanges had broken down. This paper machine had crumpled and somehow got out of order, and the result was that no business was possible."

This statement seems to have reached the United States in the form that America owed the United Kingdom a thousand million (of pounds) without the explanatory words that the sum was owned in fixed and floating capital. These words, of course, make it quite clear that Mr. Lloyd George's statement referred to the total of British invested capital in America and in no way to American indebtedness in respect of the current indebtedness of trade between the two countries."

Giving instances, the Chancellor referred to the cotton trade, and said that all the movements from the plantations to the ultimate destination of the cotton were represented by paper signed either at London, Manchester or Liverpool. When the United States bought cotton, or silk, or tea in China, payment was made through London by means of these documents.

Confusion Inevitable.

That showed, Mr. Lloyd George said, how complicated the system was. The paper issued in London had become a part of the currency of the world. Into this fine, delicate paper machinery had crashed a great war, affecting two-thirds of the people of the whole world, and confusion was inevitable. It was as if a violent kick had been given to an ant heap, and for a moment there were confusion and panic.

The deadlock which existed, he pointed out, was not due to any lack of credit in this country. It was due to the failure of remittances from abroad.

Hypothecated Credit of Nation to Save Business.

He told his hearers that the action which the British government had taken was to save British trade, British commerce, British labor and British lives. The government had hypothecated the credit of the state to restore these exchanges, upon

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which the commerce and industry of the country depended and upon which the whole community depended for their daily life.

By this step, the speaker said, the unimpeachable character of the British bill of exchange had been maintained. It was vital to the good name of this country that this type of British paper, which had become currency for the whole of the trade of the world, should be unimpeachable, and that no one should say hereafter that in a day of crisis it had been dishonored.

Bank of England's Work.

One hundred and twenty million pounds sterling ($600,000,000) of bills, Mr. Lloyd George continued, had been discounted by the Bank of England and that showed that out of a total of between £300,000,000 ($1,500,000,000) and £500,000,000 ($2,500,000,000) sterling of bills out at the beginning of the war a greater part was disposed of in the ordinary course. The total amount of bills which had arrived at maturity and for which the Bank of England had found money was £60,386,000. It was estimated that at the end of the war there would be about £50,000,000 ($250,000,000) of bills in what he would call "cold store," through their belonging to belligerent countries or for other reasons.

Not a Penny lost on Bankers Acceptances.

There would not be a penny lost to the great accepting houses, and the total loss upon the whole of these transactions, the Chancellor estimated, would not be equal to the cost of a single week of carrying on the war, and in addition British commerce and industry would be saved from one of the worst possible catastrophes.

Stock Exchange Measures.

The Chancellor laid emphasis on the success of the measures taken to deal with the Stock Exchange. He said the government had made it a condition that the exchange could not reopen without the sanction of the Treasury. He declared the British money market was in better position now than any other money market in the world.

Largest Loan on Record Floated.

The Treasury had just floated the largest loan ever raised in the history of the world, and the success of this measure, he said, he took as justification of the government's action.

Mr. Lloyd George pointed out that before the loan of £350,000,000, he had already raised £90,000,000 ($450,000,000) for the same purpose, so that practically he had asked for £440,000,000 ($2,200,000,000) from the same market.

Great Loan Oversubscribed.

In spite of the absence of the machinery of the Stock Exchange, which was a serious detriment, the entire loan had been oversubscribed. There were nearly 100,000 applicants, and the government felt it was its duty to give the first allotments to the small applicants, who, with the financial houses, had enabled the government to raise this very large sum of money without any of the expedients to which Germany had to resort to raise a smaller loan at a higher rate of interest.

That the financial deadlock which followed the outbreak of war was due to inability to collect outstanding debts abroad.

England's Power Result of Grasping Opportunity.

And now what is the lesson to learn to our profit in the future? The position that England has gained in financial and commercial affairs has been the result of the expansion in trade that began from the battle of Waterloo, and the destruction of Napoleonic militarism just a century ago, and when with a restoration of conditions favorable for peaceful pursuits she showed the ability to grasp the opportunity that came in consequence. Last year, England reached the summit of international trade, her imports amounting to £768,734,739 and exports £525,245,289 and in both particulars the highest on record. The world is in a like crisis as that of Napoleon's struggle to rule Europe by militancy, and the result will we believe be the same as a century ago.

Our Share in the Future.

But opportunities to follow will not be hers alone this time, but also for the U. S., because outside of England's financial power so wonderfully brought home by the present crisis, we have greater advantages than any she possesses. We have a great and wonderful country. Although occupying but one-sixteenth of the globe and having only one-fifteenth of its population, we are able to produce nearly 70 per cent.

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of the world's corn; over 60 per cent. of the world's petroleum and the world's cotton; about 55 per cent. of the world's copper; some 40 per cent. of the world's iron ore and the world's coal; about 35 per cent of the world's tobacco; about 30 per cent. of the world's lead, silver and live stock; and about 20 per cent. of the world's gold, the world's wheat and the world's timber. But as business men we know a position is of little value if we do not exploit it. We must take a leaf out of England's book of experience to study and be guided thereby.

Some Lessons it Should Teach Us.

Some of those things it seems to us that we must learn and employ are:—

We must establish our carrying trade by putting ourselves on the same basis, namely, the freedom to buy ships in the cheapest market, and be allowed to run them under the law of free competition on wages and other conditions.

We must make our consular service equal to hers, men trained in business, and not those who receive the position as a political reward.

In time we must establish financial arrangements by which London becomes less the clearing house for our import and export trade, no matter in what capacity she acts for the rest of the world.

We must see that those we elect to rule our affairs, are like the English legislators, not suspicious or antagonistic to business interests, but able to realize that their duty is to legislate in the interests of the nation, and that on the welfare of business hangs the welfare and happiness of all, since we are a working nation dependent on business. That their own individual fads or theories are a crime when exerted to the disadvantage of the interest of trade. That protection of the nation's trade is their first duty and that there should be no limit in legislating to that end.

Protection of its Trade a Nation's First Duty.

England's success has been that England has always looked after what is best for England's trade no matter to what length or along which road it led. If it has led them along the path of free trade it has [illegible] it was that free trade was good for British interests. It may be called selfishness but if we don't look after our interests no one will do it for us.

Practice Versus Theory.

We are too inclined to take purely theoretical views. The practical is the only rule as long as we are "men in the world of men."

Furthermore, it should teach us the necessity of a powerful navy able to protect our merchants and their goods to the extremest ends of the world.

Railway earnings in September are reported by the Bureau of Railway Economics, Washington, from duplicates of the reports used by the Interstate Commerce Commission for its monthly presentation. The showing is improving. For three months the returns per mile of line have been as follows, the revenue stated being the total revenue from rail operations, as well as from outside operation, while the net is reported before taxes are deducted. The changes from the month a year earlier are indicated:

	Revenue.	Change.
July	$1.124	—$59
August	1.175	— 69
September	1.182	— 75
	Expenses.	
July	785	— 32
August	789	— 67
September	781	— 73
	Net.	
July	339	— 7
August	386	— 2
September	401	— 2

The decreases in total revenue are beyond the control of the railroads, being a function of general business activity. In the three months there were decreases averaging 5.6 per cent, but expenses, which the railroads have found are more or less under their control, have been reduced almost as much, in dollars, and by much more, in point of percentage, the result being that the net operating income is reduced by a negligible amount, less than one-tenth of one per cent. If the accounts are properly kept, the operating expenses carry charges to depreciation amply sufficient to cover wear and tear, and thus sufficient, irrespective of net earnings, to enable the roads to buy new equipment as the old wears out.

BUSINESS TRENDS.

NEW INCORPORATIONS.

Papers filed in the principal Eastern States in November for new companies with $1,000,000 capital or over represented $81,650,000. This is an increase of $46,-102,500 over the previous month and $3,-850,000 as compared with November a year ago. But a good part of the total was furnished by a few companies. Two of the largest charterers had to do with the European war, while two other important ones represented simply the incorporation of old established business. The grand total of all companies chartered last month with a capital of $100,000 or over, covering all States, including those of the East, amounted to $130,240,-800, against $124,632,000 in 1913. The total in October this year was $70,124,500.

BANK CLEARINGS.

Following are the aggregate of clearings monthly at all cities in the United States, compared with the like periods in four preceding years as reported by Bradstreets:

(Six figures omitted)

	1914.	1913.	1912.	1911.	1909.
Jan.	$16,053	$16,092	$14,977	$14,341	$13,905
Feb.	12,736	13,483	12,788	12,136	11,121
Mar.	14,112	13,988	14,330	13,323	12,473
1st qr.	42,901	43,563	42,095	39,810	37,499
April	14,767	14,155	14,855	12,254	13,531
May	13,036	13,982	14,708	13,367	12,868
June	13,812	13,582	13,519	13,691	14,007
2d qr.	41,615	41,719	43,082	39,312	40,406
July	14,361	13,425	13,847	12,925	13,322
Aug.	9,814	12,262	13,097	12,495	13,390
Sep.	9,897	13,297	12,956	12,410	13,405
3d q'r	34,072	38,981	39,900	37,830	40,117
Oct.	11,594	15,554	17,002	13,335	15,710
Nov.	10,954	13,745	15,228	13,891	14,620
Dec.	.....	14,536	15,217	14,027	15,721
4th q'r	.....	43,835	47,447	41,253	46,032
Total	.....	168,098	172,524	158,195	164,054

ECONOMIST'S INDEX NUMBER.

The London Economist's index number, representing the price of commodities for November was 2,760 as compared with 2,732 in October. The advance was in cereals, meats and other food products and minerals. Textiles declined.

COMMODITY PRICES.

Bradstreet's index number as of November 1 works out at $8.8620 a drop of 4 per cent from October 1, a loss of 9.1 per cent from September 1, and a decline of 10.2 per cent from the record point scored on August 15, when prices probably displayed the full effects of the war scare. On June 1 last prices, speaking of them collectively, struck the lowest point touched in thirty-five months, and at this juncture it is interesting to note that the current level is but 2.7 per cent above the previous steep dip exhibited by the price curve. At the same time, the index number for November 1 is the lowest registered for any corresponding date since 1908.

COMMERCIAL FAILURES.

There were 1,585 failures involving $24,-876,263 of liabilities in November, an increase of 28 per cent over November last year in number, but an increase of only 5.3 per cent in liabilities. For the eleven months of this year the failures numbered 14,555, an increase of 13 per cent over last year, and to that extent the largest number reported in eleven months in sixteen years. Liabilities for eleven months aggregated $296,522,717, an increase of 17 per cent over last year and of 7 per cent over 1908, but a decrease of 3.5 per cent from 1907.

In the following table will be found the record of failures monthly and quarterly as reported by "Bradstreet's Journal" for the first eleven months of the present year.

1914.	No of failures.	Assets.	Liabilities.
January	1,729	$20,421,273	$35,196,682
February	1,206	10,820,258	20,159,736
March	1,260	13,530,577	26,159,420
First quarter	4,195	44,772,108	81,515,838
April	1,221	8,628,578	17,705,784
May	1,181	9,493,349	17,491,672
June	1,151	23,648,220	31,593,019
2nd quarter.	3,553	41,770,147	66,790,475
Six months..	7,748	86,542,255	148,306,313
July	1,219	19,292,236	30,545,567
August	1,191	16,282,462	37,128,027
September ...	1,367	21,231,211	32,105,387
3rd quarter..	3,777	56,805,909	99,778,981
Nine months.	11,525	143,348,164	248,085,294
October	1,445	12,567,097	23,561,160
November	1,585	13,503,719	24,876,263

EXPORT PROSPECT IN IRON AND STEEL.

(By J. H. Brookmire, President, Brookmire Economic Service.)

When it became certain that the present European War must take place every thoughtful analysis of the prospect for American Iron and Steel exports contained two factors: First, That the established export trade like the domestic trade must suffer an immediate reaction; Second, That there were possibilities of a great extension of foreign trade into new fields.

The reaction in exports developed immediately, exports of iron and steel being only $10,400,000 in August of 1914 as compared with $16,700,000 the preceding month and $23,900,000 in August of 1913. In September of 1914 the exports had rallied to only $12,500,000. This contraction is readily explained by the distribution of American exports of iron and steel and manufacturers thereof according to country of destination.

Europe	27.2%
Canada	30.5%
Cent. & South America	24.5%
All other	17.8%

It will be seen that not only was 27% of the total exports affected by the stoppage of normal business of Europe, but since the Mexican market was already disorganized, practically all of the 70 per cent. going to countries outside of Canada was immediately subject to a lack of transportation facilities.

This lack of transportation facilities has largely disappeared, but, still more serious, there remains a lack of credit and financial machinery not only in Europe but throughout all countries accustomed to depend for commercial credit upon the bankers of London, Paris and Berlin.

The questions which confront the American exporter are first,—by what means and how soon are normal exports to be restored? and second, what is the prospect of extending markets?

So far as the European market is concerned the great buying countries cannot be expected to resume normal purchases for industrial uses until this military conflict is finished, although buying along the lines of war material and supplies for manufacture into war material has already assumed large proportions.

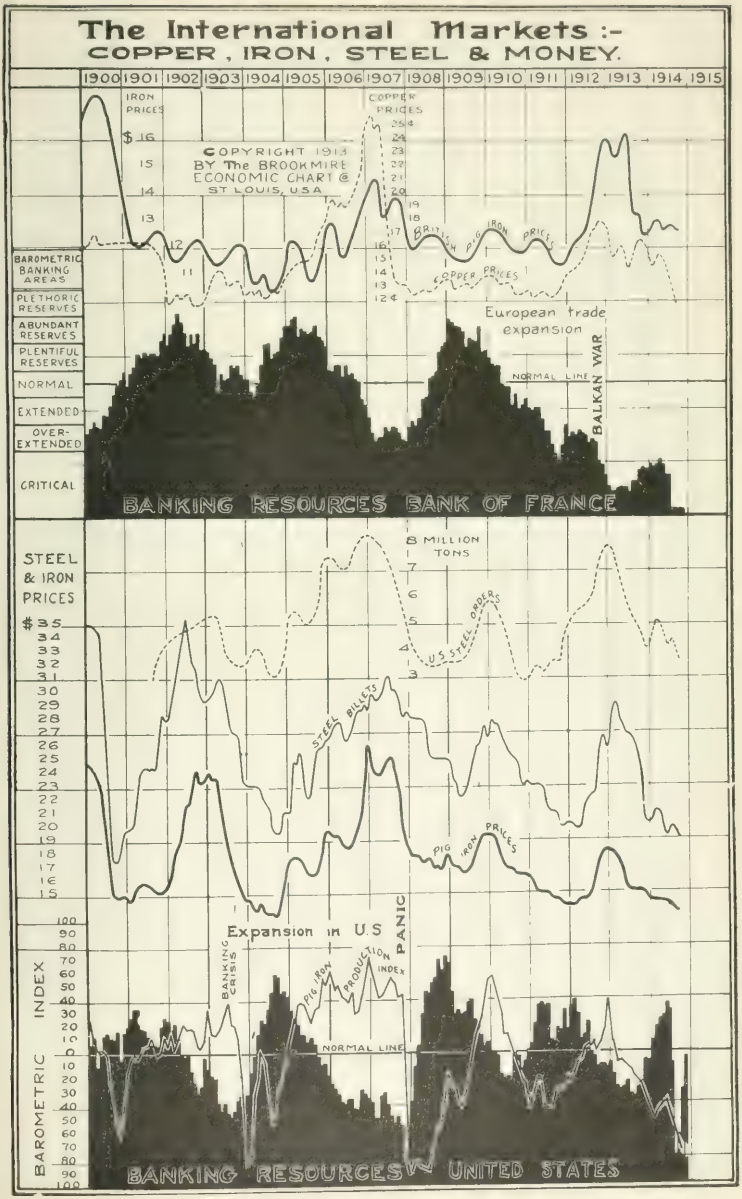
The Canadian market which is the largest field for American exports moves largely with the American domestic market, and as is shown by the accompanying chart cannot be expected to rally until such time as financial conditions are in such position as to render money available for construction work and for general business expansion.

The market of South and Central America is one in which the best possibilities for expansion of our trade seem to exist. Concerning this market three factors must be noted.

First: The credit machinery is at present totally disorganized and the most stable countries have been compelled to declare moratoria, and until the U. S. is prepared to furnish the kind of credit accommodation formerly supplied from Europe, this market cannot be a field for expansion for American enterprise.

Second: The class of goods which has been supplied to Europe cannot find a large sale in South America. Europe has taken goods primarily to be used for remanufacture. It will be seen by the accompanying tables that there is little hope of placing orders for metal working machinery or semi-finished steel in South America. Further proof of this is found in the fact that in the year 1913 Argentine, one of the most highly advanced industrial countries of South America, included in her imports of iron and steel products less than one per cent. of material or machinery to be used in remanufacture. On the other hand, we were already able in direct competition with Europe to furnish Central and South America with large quantities of railway material, structural plates and shapes, agricultural implements, pipes, pipe fittings, sewing machines and automobiles. These are the lines which we should be able to push when credit machinery is in position to allow exports.

The other countries, which include Asia, Africa and Australia, are much like the South American countries in the class of goods which they receive, being especially important in the consumption of wire. The stock-raising industry is apt to be helped by the demand for meat from Europe and were exports should be particularly bene-


The International Markets :-
COPPER, IRON, STEEL & MONEY.
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BRITISH PIG IRON PRICES
COPPER PRICES
BAROMETRIC BANKING AREAS
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ABUNDANT RESERVES
PLENTIFUL RESERVES
NORMAL
EXTENDED
OVER-EXTENDED
CRITICAL
European trade expansion
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BANKING RESOURCES BANK OF FRANCE
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U.S. STEEL ORDERS
STEEL BILLETS
PIG IRON PRICES
Expansion in U.S
BANKING CRISIS
PIG IRON PRODUCTION INDEX
PANIC
BAROMETRIC INDEX
100
90
80
70
60
50
40
30
20
10
0
10
20
30
40
50
60
70
80
90
100
NORMAL LINE
BANKING RESOURCES OF UNITED STATES

ited.

The following table shows for nine principal groups of iron and steel manufactures the volume of total exports from the United States during the year 1913:—

Total Exports, Important Groups of Steel Manufactures.

Agricultural Implements	$35,453,043
Automobiles	27,029,451
Metal Working Machinery	15,558,212
Pipe & Pipe Fittings	17,999,990
Railway Materials	35,887,739
Sewing Machines	11,851,020
Sheets and Plates & Structural Iron	39,031,868
Typewriters	11,054,397
Wire	9,237,541

The next table shows for each of these nine groups the percentage of the total export to each of our principal foreign markets:

Percentage Distribution of Different Groups

	Agri Implts	Automo biles	Metal Workg Machy	Pipe & Pipe Fittgs
Europe	54.2	27.2	77.9	25.1
Canada	15.3	32.4	12.0	22.8
Central & So. Am.	21.0	14.5	(1)	30.3
Other Countries	9.5	27.9	10.1	22.8

	Railway Materials	Sewing Machines	Sheet Plates & Struct. Iron	Typewriters	Wire
Europe	(1)	43.8	(1)	68.8	(1)
Canada	37.8	3.8	58.5	5.2	23.0
Central & So. Am.	46.8	38.8	22.6	11.3	31.0
Other Countries	15.4	13.6	18.9	11.7	46.0

(1) Small, Included with Other Countries

The accompanying chart shows how demand for iron and steel, its consequent rate of production and its price level are affected by the supply of capital available for financing construction work. When money is plentiful, railroad and industrial corporations are able to sell their bonds and to go ahead with construction work and equipment buying. At once steel orders increase and both production and prices expand; but when money becomes scarce, as in 1903, 1907 and 1913, a reaction is inevitable.

This chart shows that in the present world-wide depression of the iron and steel markets the hopeful feature for the growth of the American Export Trade is the recent advance in the Banking Index of the United States Chart. With steel orders in this country small and prices low, there is an added incentive for the manufacturers to seek foreign trade, while an increase in the banking resources will make it possible for American banks to extend the financial assistance without which a campaign for trade in those fields, usually dependent upon European banks and now affected by an extreme financial stringency, will necessarily be fruitless. Exporters who realize this and who arrange for the carrying of their new foreign customers through American banks will be the successful competitors for new foreign trade.

THE FUTURE AS IT WILL AFFECT AMERICA

In an address delivered before the Western Canners Association at their convention held in Chicago, Nov. 20th, Mr. C. S. Trench, discussing the business situation, said in part:

"Now, met here as we are today, there are a great many things that occupy your mind and on which you desire to increase your knowledge, ("for knowledge is power") of matters appertaining to your trade, such as processes, machinery, prices and the interchange of views as to how your business can be improved; how unwise trade customs created by competition can be corrected and abolished. But to those who take a broader view of their best interests, there are at present other things on which you desire to try and get all the light you can at this time, when the world is in the most momentous period in its history, when things are happening that must affect the future of every country, every business, and to some extent every individual, and I believe it is for that reason that you have asked me to be with you today.

Lessons Taught by the War.

"The war has been so thoroughly discussed, and its effects have been so dra-

matically brought home to us, that I feel that it would be a waste of time to dwell long on the subject, but with your permission there are some features that it would be well to remind ourselves of, some lessons it has taught us. The most important, and to our mind the only really satisfactory one, is that it has demonstrated that civilization and science, and the pursuit of physical comfort and aggrandizement, have not turned us into mere material beings, but that mankind is controlled and subject in the last analysis to the spiritual and moral forces that differentiate us from the brute creation. We were told there could be no such war as we are having; that business and financial and material interests ruled the world, and would not permit the waste of capital and property. But we have learned that material things or those of man's creation are as nothing when moral issues are concerned, and we find hundreds of millions of the inhabitants of the most highly civilized nations of the world engaged in a contest for what they believe is right, no matter how much they differ in their respective views, and prepared to send willingly to death the flower of their citizens, and to make any sacrifice, personal or property, for the right as they see it.

Another lesson has been to bring home to us how dependent and bound up our interests are with the rest of the commercial world since all space has been obliterated by the cable and telegraph—that the great business forces that control and sway trade and finance are not national but international, and that when such a complete upset takes place, such as happened in Europe by reason of the war, we all, no matter how far removed, are affected. As a matter of fact, the trade of the neutral countries like ourselves has been as much unsettled as that of any of the belligerents and in cases of debtor neutral nations, still more so. One week of the European war has done more to prove our dependence on other countries and the importance of our foreign trade to our domestic prosperity than ten years of academic discussion. Bankers have learned that credit is an international commodity, and producers also have learned that, whether engaged in farming or manufacturing, it requires an exchange of commodities between countries to maintain equilibrium of gold exchange. No neutral country can profit when a world-wide contraction exists in the mechanism of credit and cost of foreign exchanges. We have learned by experience a great deal of political economy during the past few weeks.

Fortunately, our country was in spendid shape to stand the shock. The hard times that preceded the war, whether the result of an administration with which the business interests of the country were not in sympathy, or the fears of the experiments being made in tariff and other legislation being considered inimical to business developments, or whether because of past business mistakes and errors that had to be adjusted, it matters not. What we do know is, business for some time before had been closely reefed down, consequently when the blow came it only rocked our business ship—it did not upset it. I think many of us, especially you gentlemen in the West, failed to appreciate what a serious state of affairs we passed through those opening weeks of the war. But you saw every exchange closed, and after three months many of them so remained. You saw our country and the world pass temporarily from a gold basis; you saw nearly 400 millions of emergency currency legalized and issued against commodities and business paper, which alone prevented the hoarding of money and the greatest panic this country ever experienced; and perhaps greatest of all you saw the leading governments of the world make a new precedent by assuming the control of the entire business and finances of their countries. The surface exhibition of comparative calm in business and finances that has existed, however, should not deceive us as to the gravity of the situation that existed, and which is now gradually being overcome and giving place to more normal conditions.

Situation Ably Handled.

It was the result of an artificial state caused by the unprecedented steps that have been taken of closing the exchanges, and stopping the free action of trading, prices and speculation. The governments at war, and to a large extent the governments at peace, have been forced to assume a control over business and finances, almost as effective and profound as their control over their armies in the field. The calm is the result of war measures. The business and finances, debtor and creditor, have had no rights in the great commercial na-

tions at war, except those that the government permitted them to exercise.

But there has been no complaint, because these governments have called to their council boards the leading representatives of business and finances. Perfect harmony exists, and we find the political and business interests working together as a unit in the face of a great emergency. To some extent, it is the same with us, certainly as regards finances. Just when a crisis had been reached that threatened a complete break between the business and political interests of our country, the perils caused by the European war has restored peace—Washington has recognized how dependent they and the country are on the counsel and co-operation of those interests which it was the fashion to hound and abuse when no danger was in sight.

The average man little appreciates how remarkably the situation has been handled the world over, the extraordinary dangers that have been avoided and overcome, and those that still exist and confront the world. But the skill and courage of the European and our governments and captains of industry have shown have been of a higher order than anything from those who have directed the armies, since they directed greater economic forces, and more complex dangers, threatening greater ruin and destruction, and it gives us confidence that should greater dangers arise they will be successfully handled.

Future Gives Great Promise for America.

But what of the future, because that is what most greatly interests us as business men? Artemus Ward used to say: "Never prophesy unless you know." Well, we none of us know, but I am bold enough to make three predictions:

First, that this war is not going to last as long as people generally expect, and my reason for this belief is not, as so many may think, the exhaustion of money and material means to continue it, (you remember what the South in our Civil War did after they had reached a condition such as the warring nations abroad could not reach in five years or more)—but rather from the manner of its prosecution. Almost three months have elapsed, in that time nearly two millions men, or one-fifth to one-sixth of the armies in the field, have been killed, wounded or captured, and there is every [illegible] will be increased in the remaining time. A war like this can't continue long, since it is one continuous battle, and not, as in former years, a series of campaigns.

Second, it will be a new world of opportunity that will begin, and it will be our own fault if with the national advantages we possess and the new ones that will be opened to us in foreign trade, America does not take the leadership of the business world. It will find us less impoverished and exhausted than our foreign business allies, in which we include the whole business world, and in a position to reap more fully than any other country the blessings of peace.

Furthermore, if we keep out of the war, our country as the largest and most influential morally and physically of any of the neutral countries and less selfishly involved of any, will be the one on whom will fall the office of presiding at the conference to settle what are to be the lines along which the political matters of the world are to run in the future.

New rules and boundaries will be laid, I think, a kind of United States of Europe will be the result, where each country be it under government of king, emperor, or republic, will be supreme for its own government in most things, as in the case of our states, but on some matter like armaments and the enlarging of their borders they will be controlled by a central authority, as with us at Washington, composed of proportioned representatives from each country as to its size and importance, to which agreement all will be bound and secured by an agreement which will be enforceable even if it entails united action by force against the one who breaks it, or who may decide to consider it a "scrap of paper." Remember this is only my prophesy.

Predicts a Boom.

Third, that what has happened and is still going on and the peace to follow is going to result in what will be the greatest business boom this world has ever seen—a boom, by which we understand a period when the business imagination is optimistically excited; a period when the desire to buy far exceeds the desire to sell; when in consequence prices begin to rise, with growing excitement, and each advance only adds fuel to the fire. The pendulum of trade having previously been swung in the direction of extraordinary depression and held there by some abnormal causes, long after

it should have normally swung back, is suddenly released, and the swing in the other direction sweeps everything before it.

This, we believe, will follow the end of the present war. It has followed the end of all modern wars. The immensity of the present war and its sensational results, to our mind means a likewise sensational reaction.

But there are other reasons than the mental: There must be a stupendous movement to replace the destruction caused by the war. Millions of those best able to work for the physical advancement of the world and who have in the past been idle and supported by the workers as armed European camps will be thrown into the channels of trade and joined to the industrial armies of their respective countries —and there will be plenty for them to do.

The awful destruction of cities, towns and villages that has taken place, and the further destruction that is to follow before the war is ended must be repaired. Belgium, France, Germany, Austria and Russia will still be among the important countries of the civilized world as they have been in the past, only more so. The ruins will not remain "to point a moral or adorn a tale." The end of the war will see enormous activity and the erection of new cities and towns and buildings on the ruins of the old.

Political economists, at whose feet we have been glad to sit, have given it as a fundamental, that prosperity and activity in business can be gauged by what they call "construction," be it buildings for home or manufacturing use, machinery and everything else that may be broadly classed under the term construction. The reasons why this is so are so plain that they need not be mentioned, except to say new construction represents the need and the power to supply the need.

But I know some will say that this is impossible, as there has been such an enormous destruction of capital and the world will have been so impoverished that it will take many years to recuperate. Well, it depends on what you call capital. If you mean money, gold and silver, there has been no destruction. There will be more of these as a result of the production of these metals from the earth than when the war began, but if you mean, as I do, not only money but confidence, then there has been an awful destruction, but, unlike material things it is mental and can be not only as rapidly restored as lost but greatly added to in volume when the causes that destroy it are removed.

Business Boom to Follow War.

But there is another reason for my prediction, and it is, that previous to the war and sensational developments since the war began, there has been an enormous vacuum formed by the curtailment of output. In our country from a normal production and consumption of iron and steel, to take the basic industry as an example, of some 30 to 33 million tons per annum, we are down to a rate of less than 20 million tons; the balance has been left in the ground, and the same is largely true of copper and other metals. There is no change in our civilization or requirements for these metals; we have been forced from causes you know to cut down output sensationally and to stop necessary additions and improvements in which these commodities are consumed. The country has been forced to go short of supplies and stocks. With the obstruction removed there will be a rush to fill the vacuum. It will put every mine and mill working to a capacity such as we have never seen before—with a rush to buy on an advancing market—and the life of the boom will be the months it will take before production has overtaken the demand. It will begin before the war ends. I already think we see signs that the wise should take as warning of what is coming. Certainly it can be seen in copper, lead, spelter iron and steel, which from having reached the limit of depression in price and operations, have now commenced to improve.

We know of the enormous expenditure going on by the various nations at war. England, after voting one billion dollars, has now negotiated another billion and a quarter, and the money is not to be looked at but spent, and is being done with rapidity, and lavishly, and from being withdrawn from stagnant funds and timid holders, is now being showered into the channels of trade.

Of course, the boom will, like all other booms, end in a collapse and then the real effects of the enormous loss from the war will be felt in a long period of recuperation. But I am not talking of one or three years after the war, I am dealing only with what is before us, in the next few months, and what will evidently follow, peace. I am not predicting prosperity per se. I am talking

coming extraordinary activity and advancing prices as result of extraordinary and abnormal previous conditions.

No Room for Further Depression.

But I am afraid some of you, after hearing all I have said about the gravity of the situation created by the war, will think I am too optimistic in my views of the future, and that some of the shivers that run up and down the spines of some of us during the past three months still remain. To such I will end with a story of a Welsh coal miner, who, one night, walking home in the dark, stumbled into an abandoned pit. As he fell he clutched a beam, and with the strength given men in a desperate place, held on. Suspended by his fingertips over the black hole, he tried to peer into its depth. He could see nothing. Then he looked up; how far off the stars had suddenly retreated! His frightened mind pictured how much further they would retreat if he should let go the beam. Shivers chased up and down his spine as his fingers began to numb. Minutes passed. He calculated the time it would take for his mangled body to reach the bottom of the shaft. He pictured the faces of his mates when they found him in the morning. More shivers agitated his spine. More minutes passed. At last he could hold on no longer. He let go. He fell 12 inches. He had been hanging over a shallow hole in the ground.

No, gentlemen, business in this country has fallen so much there is no room for a further drop. It is a time for courage and confidence in ourselves, our trade and our country. Awful as is the spectacle we are viewing abroad, it has an inspiring side. We see in it, terrible as is the price being paid, the promise of a better world, for everything that makes for the progress and happiness of those to come after, and a complete revolution, to put the destinies of Europe in the hands where it should belong, the hands of the people—a victory for democracy over autocracy. The world will be freed from the fear of any like catastrophe for generations to come, and conditions will have been made more favorable for the peaceful pursuits of civilization than any that have existed in the past.

STEEL INDUSTRY WILL GROW.

Prospects of Great Increases in Demand for Steel—Recent Past an Exceptional Period of Slow Growth—Barriers to Proper Application of the Trends.

Recently a member of our staff in conversation with a steel manufacturer expressed the view that the iron and steel industry of to-day is undersized rather than oversized in relation to the normal development of demand. The steel manufacturer asked him to elaborate the view in a personal letter, and the letter, recently dispatched, is now published below.

"Referring to our recent telephone conversation regarding the capacity of the United States to produce pig iron and steel, and the relation of this capacity to normal demand, it would be easy to make a bare statement of estimated capacity, new construction in recent years, etc., that would indicate that from a normal view point the industry at the present time is undersized rather than oversized. Such a bare statistical presentation would confirm the views of those who already hold such an opinion but I do not think it would by itself go far toward convincing those who have formed the opposite opinion. It is [illegible] some of the barriers that lie in the path of forming an unbiased judgment, erroneous impressions that have insidiously made their way into the minds of probably a majority of those in the trade. To me it appears necessary merely to point out those barriers, whereupon they will fall into the holes awaiting them and pull the holes in after them.

"The first barrier is failure to realize that the panic of October, 1907, occurred full seven years ago. At that time there was much new iron and steel works construction under way, and when demand suddenly fell off, instead of increasing in order to take up the prospective new capacity, the whole trade rightly concluded that it would require a period of years for demand first to recover the former rate and then to grow by an amount equal to the prospective increase in capacity. Since the completion of the new construction program that was on the boards at the end of 1907 there has been very little new construction, a very

small percentage considering that this became a 30,000,000 ton country seven years ago. The seven long years since the panic have afforded an amply long period for such growth. Consider, for instance, that the United States has made records like this in pig iron production: 4,044,526 tons in 1885 and 9,202,703 tons in 1890, 125% increase in five years; 6,657,388 tons in 1894, 13,620,703 tons in 1899, 105% increase in five years; 15,936,018 tons in 1908, 30,966,152 tons in 1913, 94% increase in five years. Of course these are not progressive increases, but they prove conclusively the power of recovery the trade has shown up to the most recent times.

"Another barrier is the popular superstition that steel is now being made out of old material instead of pig iron. People compare the steel ingot production with the pig iron production and noting that the figures are about equal conclude that the steel industry uses a large amount of old material, to permit a large tonnage of pig iron to be used in the foundry industry. They fail to recognize that steel ingots are not commercial steel. I estimate that in 1913 the finished steel, in the form in which used, weighed about 8,000,000 tons less than the weight of steel ingots reported as produced. The bearing of this observation is that there is not nearly as much pig iron capacity in the country, relative to steel capacity, as is frequently assumed.

"Another barrier in the minds of many is the idea that the big construction work, bridges, buildings, railroads, etc., has nearly all been done and that the steel industry of the future will have to rely more largely upon light lines of consumption, like metal furniture, fence, automobiles, etc. On the contrary, the period of heavy construction work has scarcely begun. Witness, as forerunners, the Quebec bridge, with some 70,000 tons of steel, the Hell Gate bridge and approaches of the New Haven, 85,000 tons, and 200,000 tons of steel ordered in this one year for the New York subway. When the production of steel was one-half what it is now, was there a solitary job that used one-half as much steel as is now sometimes used in a single job, or when steel production was one-third as great, was there one job one-third as big as the big jobs of to-day?

"With these three barriers removed the average man who studies the production statistics will, I think, be ready to conclude that the past few years have constituted a period of slow development in demand for iron and steel, to be followed at some time by a much more rapid development. The opportunities are boundless; railroad extensions, including electrification and the use eventually of steel ties; water power development with long transmission lines, bigger bridges and buildings than ever; subways or elevated roads in city after city, and so on, together with a constant increase in the use of steel in lighter vein, for dwelling house construction, household goods, office furniture, farm machinery and so on.

"With this preparation, observe that decade by decade through the year 1907 the production of pig iron (and I maintain steel is simply refined pig iron, not reworked old material to any important extent) doubled or more than doubled. To continue merely a rate of doubling the production in 1915 should be 45,000,000 tons, but I am sure the country could not make 35,000,000 tons next year, unless possibly by extravagant prices being offered, to put in blast effete furnaces, bring coke from unnatural places and put the iron ore mines and transportation facilities under unreasonable pressure.

"In considering the future, the possibilities of iron and steel making capacity growing up to the increasing demands that are to come, there is also a barrier in the minds of most men, in that they are disposed in gauging the future to use unconsciously the antiquated measuring rods of the past. Whatever the length of time required nowadays to build a steel plant, the time is double what it was fifteen years ago, and this means that for the same annual increase in tonnage there should now be twice the amount of new construction in progress at any one instant, but to preserve the percentage rate of increase the amount should be very much larger still. Taking what I consider an ultra-conservative view, this is a 30,000,000 ton industry to-day against a 15,000,000-ton industry fifteen years ago, and that means, to preserve the same rate of increase, four times as much new construction to be in progress as was needed fifteen years ago. Given a 30,000,000 ton industry, to expand at the rate of doubling every ten years, and two years only required to build a

plant, there should now be in course of construction capacity equivalent to 4,000,000 tons a year, and year by year, as the size of the industry increases, the amount of construction in course should increase. Suppose the percentage rate of increase does gradually fall off, the new construction would nevertheless be very large. Was there 4,000,000 tons of new construction in course a year ago, is there now, or from the present outlook will there be a year hence?

"I have been studying the iron and steel industry for 22 years, I hope to study it for 22 years to come, and I hope to see the statements here made verified in course of time."

HOW THE BANK OF ENGLAND SAVED THE SITUATION

The effect of the various relief measures undertaken by the Bank of England to meet the financial situation that arose after the outbreak of war is described in a Financial Review just issued by the Swiss Bank Verein of London. It tells how London, the banker of the world, with current acceptances estimated in the neighborhood of $1,500,000,000, was able to carry on its banking business with a minimum of discomfort and through the action of the Bank of England is assured of coming safely through the greatest financial crisis the world has ever witnessed. The obligations entered into by the Bank of England in order that the country might keep right on doing business is described as unparalleled in history and reflects the enormous credit and resources of the British Empire. The Review says in part:

The Treasury not being obliged to hold a gold reserve of its own, it is clear that the convertibility of the Treasury notes is also based on the Bank of England's stock of gold, which, however, was at the time inadequate to meet the issue of the Bank of England (in excess of the government debt), plus the issue of Treasury notes, so that the government action virtually amounted to a suspension of the bank act. Since open suspension of the bank act might have caused alarm among the public at large, the adoption of this course seemed well timed as a measure of prudence, and has proved most effective. In the meantime, however, the Treasury has also constituted a gold reserve.

Accordingly, the Treasury held on the 28th of October £9,500,000 in gold, and a credit balance at the Bank of England of $5,778,000, or £15,278,000 in cash against £31,366,690 notes in circulation. The notes in circulation at the Bank of England on that date amounted to £35,100,000 and its stock of gold to £61,900,000. Consequently, the total combined note circulation of the Bank of England and the Treasury amounting to £66,500,000 was covered by a gold reserve of £71,400,000=107½%.

The prompt action of a well-advised government had a most reassuring effect upon the public mind; the fear of a scarcity of currency on the one hand, and of undue pressure in respect of open liabilities on the other hand being at once dispelled, and the Bank of England soon became sufficiently satisfied as to the general situation to reduce its discount rate to 6% on August 7 and to 5% on the following day.

But whilst it was fully understood that the Moratorium afforded necessary protection with regard to existing liabilities, doubts arose as to what might be the effect of its termination, and as a consequence, both creditors and debtors, and especially the banks with their cross engagements were placed in a position which restrained them from entertaining any fresh business for the time being. The government, fully understanding the position and, determined "to keep the country going," decided on a measure which bold as it might appear, was in the opinion of experts, by no means too venturesome in view of the sound underlying conditions of commerce and finance. It arranged for the Bank of England to discount without recourse to the holder, all approved bills accepted before the declaration of the moratorium, under guarantee of the government, at the official rate.

In thus pledging the credit of the nation on behalf of the interests engaged, in trade and industry, or in financing same, it at once removed the bar which had brought the machinery to a stop. Bills being a liquid asset as long as they could not be

discounted, immediately became available cash. Several hundred million sterling could thus become liquefied and the deadlock was ended. Important as this step undoubtedly was, it soon became clear, however, that it was not adequate to completely restore confidence.

Whilst it enabled holders of bills to obtain cash and become relieved of contingent liabilities, acceptors felt insufficiently protected as to their position at the termination of the moratorium, an apprehension which was promptly removed by a new proclamation, to the effect that the Bank of England, on government authority, would advance the necessary funds to meet acceptance for which cover is not duly forthcoming from clients, until one year after the close of the war, it being naturally incumbent upon acceptors to collect such amounts from their debtors as speedily as possible and repay the bank at the earliest opportunity. In this way, drawers and endorsers become also freed from their contingent liabilities, whilst the government, for its advances rank in respect of these pre-moratorium bills only after post-moratorium creditors.

Under these circumstances and being thus safeguarded there was no justification for the banks and accepting houses, and the market generally, to refuse necessary accommodation for legitimate business transactions, and the government, fully alive to the danger of hoarding and withdrawing of funds—which in times of unrest must cause a crisis or intensify it—reminded them in very outspoken fashion of their solemn duty to afford liberal assistance to trade and industry in order to save the country from general unemployment and disorganization. Actuated by the principle that the funds of the nation, concentrated in the banks should be made available in the interests of the common weal (without unduly imperilling their safety), the government has shown admirable determination and good judgment and its dispositions will go down to history, forming a striking contrast to the attitude of the authorities in some other countries. Though a general moratorium has been declared, the government urged upon the banks to make use of it only in cases where funds were withdrawn for hoarding. In other states, full use of the moratorium was made, causing great hardship, and elsewhere, although no moratorium, but only a suspension of judicial proceedings had been proclaimed, the banks were admonished not to pay out more than a small proportion of credit balances from day to day, a proceeding which clearly seems nothing short of illegal and detrimental to the credit of the banks.

As a result of the government action, the money market swiftly responded, large amounts of pre-moratorium bills being sent in to the Bank of England from day to day for discount, which increased the floating supplies of bank credits by an equal amount. At the same time, owing to the decline in trade, and the uncertainty prevailing, the creation of new bills became restricted. The discount rate for pre-moratorium bills soon dropped considerably below the level of the Bank of England's minimum and gradually to 3%. For post-moratorium bills, which were, of course, not discounted at the Bank of England under the government guarantee, the rate also declined below bank rate and has now likewise fallen to about 3%.

The change in the monetary situation, however, expressed itself most markedly in the rates for loans on call and at short notice, which finally declined to 1%-2% nominal. Deposit rates were in consequence reduced to 2%.

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INDUSTRIAL OPPORTUNITIES

Extracts from address by Geo. Otis Smith, Director, United States Geological Survey, before American Institute Chemical Engineers, Philadelphia, Pa.

Four constituents enter into the reaction that we term industry. Two of these, brain and power, are organic compounds and two are perhaps to be regarded as inorganic — money and material. None of these components is wanting here in the United States and in fact their abundance affords the best reason for an optimistic outlook upon the present industrial situation. Of these four constituents, labor and capital and brains are all more easily transported generally than the crude materials upon large tonnages of which the industry must depend. Thus, cheap coal attracts manufacturers just as cheap land attracts farmers.

With distribution of raw material is linked the influence of markets upon the location of industry. The development of transportation systems makes the problem of markets a most complex one. The industrial independence of the small community of a century ago has given way to the system under which your dinner table may represent the tribute from several continents. Even in a country so diversified as ours in its natural bounties domestic production of everything consumed is not desirable nor profitable. Exchange of commodities with foreign countries becomes necessary, so it follows that industrial independence is the goal toward which a nation should face, but not a goal which it should have either the intention or desire to attain.

To increase industrial prosperity this country needs to export finished rather than crude products and to import raw materials rather than manufactures. It is the product of American labor rather than the bounty of our natural resources that preferably should go into the world's markets. As the engineers of America study this matter of expansion of manufacturing, it becomes evident that the distribution of raw material and of power is the key to industrial opportunities.

Petroleum and natural gas in their distribution in some degree supplement coal. Thus, the largest oil field both in present production and probable reserve is in California, a State with only negligible coal resources. Taken together, these mineral fuels constitute a national asset comparable with the soil resources of this country, but [illegible] the natural gas, petroleum, and coal to the nation is in their relation to manufacturers.

The wide distribution of ores of the principal metals sufficiently rich and extensive to be mined in large quantities means that the metallurgical industry is important on both the Pacific and the Atlantic seaboard, in most of the Rocky Mountain States as well as in several of the Middle States. Even in the two metals which at once suggest to us centralization—copper and steel—there is widespread production. In the mining of copper last year 23 States contributed, and no less than 28 States furnished iron ores to the furnaces of the country.

The raw material resources of this country are so widely distributed that industry has been developing at this rapid pace at many points. The tendency is away from geographic centralization of industry rather than toward it. A few opportunities for expansion need only to be suggested: the South with its happy combination of coal and iron-ore in the same districts makes pig-iron production possible at minimum cost; the West with its hydro-electric possibilities available as a source of relatively cheap power for chemical and metallurgical industries; the Rocky Mountain region with its vast unutilized sources of sulphuric acid and equally great unmined stores of phosphate rock.

The ingredients necessary for producing prosperity appear at hand. The new financial system already promises more mobile credits. A more sympathetic attitude of the public toward big industrial operations is indicated. The efficiency of American labor and American engineering was never questioned.

In any estimate of American ability to make the most of the present opportunities for industrial expansion, no better measure of the inventive genius of this country can perhaps be found than in a moment's review of what is making the European war so terrible. Strictly neutral may we be, yet from the heights above to the depths below we find American inventions "at the front" —the aeroplane, the magazine rifle and machine gun, the barbed wire, and the submarine and its torpedo. Can not our nation lead as well in fashioning the tools of peace as in designing the machines of war?

TOPICAL TALKS ON IRON.

XXI. The Rate of Increase in Production.

In Talk No. XV, in the Jan. Number, the "popular superstition" that relatively large quantities of old material are consumed in the basic open-hearth steel process was discussed at some length. Years ago rolled steel supplanted rolled iron almost entirely, and there has also been a continuous tendency for rolled steel to supplant cast iron in many cases. There is good ground for assuming that the rate of pig iron production represents quite closely the rate of iron or steel consumption in general, and we have pig iron production statistics since 1810, though fragmentary for the earlier years, whereas steel production figures cannot be studied with equal advantage.

Years ago it was a generally accepted statement that the rate of pig iron production doubled every ten years. The increase was not uniform, however, and in recent years the rule seems, from some viewpoints, to have broken down. The subject is a very interesting one, and the case cannot be seen at a glance, for the reason that from year to year there have been wide fluctuations, so that the figures must be studied with considerable care to obtain their true meaning. For instance, from 1890 to 1894 production dropped 28 per cent, whereas from 1888 to 1890 it had increased 42 per cent, though 1888 had been a record year, and from 1897, a record year, to 1899 it likewise increased 42 per cent.

The performance before the Civil War may be dismissed, as it was not until 1864 that the country made a million tons of pig iron in a year. During most of the period, however, the production seems to have doubled about once in ten years. The later figures, for the past half century, can be studied in various ways. The most convenient means for testing the rule of doubling every ten years would seem to be to try to cover up annual fluctuations by taking total production in ten-year periods, but even that process of computation shows considerable variations according to years in which the ten-year periods are made to end. Then there is the disturbing element that from 1874 to 1878 and from 1893 to 1897, both inclusive, production was abnormally light, on account of there being prolonged industrial depressions. The tonnage made in 1873 was not equaled until 1879, while the tonnage of 1890 was not equaled until 1895.

No matter what year is selected to tend the ten-year periods, the figures always show a quadrupling in 20 years, but the gain from one period to the next may be less than 100 per cent, and the gain to the following period more than 100 per cent.

Perhaps the most representative grouping would be to take the ten-year periods ending 1911, 1901, 1891, etc. While that puts the depressions of the seventies and nineties each in one ten-year period, it puts 1911, a rather poor year, in with the period comprising the very good years 1905-6-7, and it puts 1899, 1900 and 1901, good years, in with the poor years 1893 to 1897 inclusive. This grouping gives the following totals of pig iron production in ten-year periods, with the percentage of increase over the previous period:

	Gross tons.	Increase.
1862-71	12,420,592	83%
1872-81	26,492,739	114%
1882-91	61,037,657	130%
1892-01	105,723,238	73%
1902-11	219,093,127	107%

The last four periods have shown alternations of more rapid and less rapid increase, but the tendency is to a somewhat less rapid increase. From the ten years ended 1881 to the ten years ended 1901 the production was multiplied four times, while from the ten years ended 1891 to the ten years ended 1911 the production was multiplied by only 3.6 times.

The figures thus far would indicate that if the rule of doubling is breaking down, it is breaking down only very slowly.

Let us see now what change will be effected by moving the periods forward by two years, so that the last period shall end with 1913 instead of 1911, the period before with 1903 instead of 1901, and so on. Instead of the last three gains, being, in order, 130 per cent, 73 per cent and 107 per cent, as shown above, the gains are 122 per cent, 84 per cent and 95 per cent. The first and third gains are decreased and the second

increased, because the bad years 1892 and 1893 are thrown back from the second into the first period, while two good years, 1902 and 1903, are thrown back from the third into the second period. To throw the computation still farther forward and make it end with 1914 instead of 1913 would not make so much change, because the last period would gain a poor year, the present, but would lose a poor year, 1904.

Another way to study the statistics is to take a year's producion and pick out the earliest years that showed respectively one-half, onelfourth, one-eighth and one-sixteenth as large production. starting with the 30,966.152 tons made in 1913, we should have the following, with the intervals in years:

1913
12 years
1901
12 years
1889
9 years
1880
9 years
1871

This comparison again shows a slight tendency for the rate of increase to grow smaller, but only a slight tendency.

While it is quite impossible to draw positive conclusions there is considerable reason for adopting the idea that the production grows more rapidly in alternate ten-year periods. If so, we are now passing through one of the "off" decades, and the smaller rate of increase just at this time may not be a positive indication that the rate will continue smaller.

In any event the writer is convinced that the rate of increase in very recent years has been abnormally small. The off years 1908, 1911 and 1914 are badly off and are abnormal. A period of bad years can be understood. Times may be bad, or the industry may have grown too rapidly and surfeited the country, but for one year to be far below the average of the immediately preceding and following year does not look right. The value of iron and steel is better understood than formerly by the buyers and fluctuations in price, depending on whether producers are hungry for orders or are well supplied, ought to be sufficient to distribute the consumption more uniformly from year to year. Now, as formerly, a large quantity of iron and steel goes into permanent use, and if the buyers are actuated by considerations of cost of material rather than of conditions in the financial market their purchases will be much more uniform.

———o-C-o———

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THE SITUATION.

There has been a very rapid clearing of the skies in the iron and steel markets in November. Conditions have been, and are, so depressed that the average observer may not rate the improvement in the outlook as highly as should be done, from the comparative standpoint. When steel mill operations decline from a rate of 70% in July to a rate of 35% at the close of November, to a rate indeed below all precedents, there is no telling until the turn is discerned how far the slump may go, and a turn at any point is a very favorable development. The more the precedents were broken the more the trade found itself at sea, and the more it should welcome a turn. True, it's a long, long road to a satisfactory state of affairs, for at any time in the past a doubling in the rate of operation would be regarded as a wonderful and spectacular improvement, even though it occupied a period of six or nine months, but a doubling of the present rate of steel mill operations would produce a rate of only 70%, and that by ordinary standards is regarded as very poor.

At the beginning of December steel mill operations are, as indicated, at a rate of 35% of capacity. Pig iron production is at the rate of about 19,000,000 tons a year, 55% of the maximum rate ever attained and about 50% of the actual commercial capacity. Pig iron prices are, in the general average, at about the same level as a month ago, and at about 35 cents a ton less than at the low point at the beginning of 1912, being at about the lowest level reached in 1904, and therefore at practically as low a point as at any time since 1898, when everything was different.

Unfinished steel is a trifle cheaper than at any time since 1898, but is only slightly below its low point of late in 1911, just three years ago. Finished steel products average a few cents a ton lower than at the low point of three years ago, and therefore are at the lowest level since 1898. Operations at the steel mills must be entirely unprofitable, seeing that three years ago there were scarcely any profits, while the manufacturing cost is to-day much higher, wages being higher through the advance of early last year, and the overhead falling especially easy per ton when operations are at 35% of capacity against 70 to 75% three years ago.

The November Movements.

The November movements deserve to be treated in detail, seeing that they were clear cut and evidently promise something definite for the future.

In the first week of the month there occurred a great change in that intangible but easily observed something, the "sentiment." On all hands it began to be reported that sentiment, the general tone in the trade, had improved. The feeling had been utterly pessimistic and hopeless for months. Men knew merely that conditions were growing worse; they had no means of knowing how much worse they might become, for all precedents had been broken. Sentiment began to improve. Hopes revived that a turning point had been reached and everywhere there was an air of expectancy. Soon complaint began, as it always does, that sentiment will not operate blast furnaces and steel works, that if there was anything in the sentiment it ought to be shown in orders. Such impatience is always to be observed when a turn is being passed.

By the second week in November the improved sentiment began to be shown in concrete way in a quarter that does not usually show changes first, namely, in the pig iron market. Often there has been an improvement in steel without any in pig iron. Three years ago the lowest steel prices were reached in November (1911) but the lowest prices in pig iron did not develop until the following January. Steel prices advanced in December (though they lost a part of the gain in February) while pig iron did not begin advancing until March. In this movement, however, pig iron has led. In most districts a sharp increase in enquiry was noticed in the second week in November. Then certain Buffalo furnace interests made a drive. They were already quoting pig iron $1.50 per ton lower at Buffalo furnace than ever before. The district is relatively new, and had not thitherto been forced to show the best it could do. The furnaces made further concessions, and sold some large blocks of iron, particularly 108,000 tons to the American Radiator Company, at

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slightly less than $12 at furnace. Other purchases swelled the Buffalo movement to about 200,000 tons and the furnaces marked up prices 50 cents to $1 a ton.

Within a few days, or just after the middle of the month, much greater activity appeared in the Pittsburgh district. The American Steel Foundries (which had previously bought in Chicago for St. Louis) took 15,000 tons of basic for Alliance and Sharon, at $12.75, delivered, and the United States Cast Iron Pipe & Foundry Company took 20,000 tons or more of foundry iron for its Scottdale plant. Other steel and foundry interests in the Pittsburgh district made purchases, and a rolling mill took 3,500 tons of forge, the total movement in the Pittsburgh district being about 100,000 tons. Farther west there developed good buying, of southern iron in the central west and of foundry iron from Chicago furnances. The movement in the country at large has to date easily exceeded 500,000 tons, and is still in progress.

At Buffalo the buying was followed by advances in price, as indicated. At Pittsburgh there was no change. At Chicago there were slight advances. In southern iron there was a decline, the natural concession when a nominal market becomes an active one. Much southern iron must

PIG IRON PRICES.

(Averaged from daily quotations; at Philadelphia, Buffalo, Cleveland and Chicago, prices are delivered)

	Bessemer, Valley	Basic, No. 2 fdy, Valley	Basic Phila.	No. 2 X fdy. Phila.	No. 2 fdy Buffalo.	No. 2 fdy Cleveland.	No. 2 fdy Chicago.	Ferro-manganese.* Birmingham.	Furnace coke†
1913—									
Jan. ..	17.25	16.50	17.50	18.00	18.49	17.50	17.75	18.48	13.72	65.00	3.85
Feb. .	17.25	16.43	17.12	17.75	18.23	17.22	17.44	17.87	13.46	65.00	2.60
Mar. .	17.20	16.14	16.60	17.50	17.81	16.79	16.75	17.75	13.04	64.00	2.47
April .	17.00	15.87	15.66	17.00	17.49	15.96	15.41	17.60	12.60	61.00	2.20
May ..	17.00	15.25	14.73	16.50	16.77	15.58	15.56	16.67	11.74	61.00	2.15
June ..	16.34	14.50	14.18	16.50	16.26	14.43	14.95	16.24	10.89	61.00	2.20
July ..	15.86	14.40	13.88	15.90	15.66	14.01	14.68	15.38	10.50	59.00	2.50
Aug. .	15.63	14.09	13.94	15.25	15.56	14.20	14.50	15.44	10.85	56.70	2.50
Sept. .	15.75	14.00	14.00	15.25	15.97	14.25	14.55	15.50	11.20	54.50	2.37
Oct. ..	15.67	13.97	13.83	15.25	15.94	14.25	14.73	15.50	11.48	50.28	2.10
Nov. .	15.23	13.28	13.57	15.13	15.61	13.96	14.35	15.43	10.80	50.00	1.88
Dec. .	14.95	12.83	13.38	14.75	14.98	13.32	13.76	14.83	10.50	47.00	1.77
Year .	16.26	14.77	14.87	16.22	16.56	15.12	15.37	16.39	11.73	57.87	2.38
1914—											
Jan. ..	14.06	12.51	13.00	14.25	14.69	12.76	13.30	14.35	10.63	43.42	1.88
Feb. ..	14.13	13.21	13.21	14.00	14.88	13.02	13.56	14.46	10.52	38.33	1.90
Mar. ..	14.20	13.05	13.25	14.10	15.00	13.38	13.75	14.75	10.75	38.40	1.92
April .	14.00	13.00	13.25	14.25	15.00	13.75	14.21	14.75	10.52	38.00	1.90
May ..	14.00	13.00	13.17	14.10	14.91	13.57	14.25	14.68	10.50	38.00	1.83
June ..	14.00	13.00	13.00	14.00	14.51	13.01	14.35	14.21	10.29	38.00	1.80
July ..	14.00	13.00	13.00	14.00	14.40	13.00	13.81	14.38	10.06	37.50	1.75
Aug. .	14.00	13.00	13.00	14.00	14.28	13.18	13.75	14.44	10.00	111.00‡	1.74
Sept. .	14.00	13.00	13.00	14.00	14.68	13.25	13.75	13.85	10.00	83.00	1.70
Oct. ..	13.97	12.88	12.89	14.00	14.29	12.74	13.73	13.48	10.00	68.00	1.65
Nov. .	13.75	12.50	12.75	14.00	14.24	12.74	13.50	13.10	10.00	68.00	1.60

* Contract price, f.o.b. Baltimore; †Prompt, f.o.b. Connellsville ovens.
† Spot shipment; no contract market.

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be sold before the market will be in position to advance.

It is noteworthy that southern iron trailed northern. In nearly every instance in the past it has led northern in advances and declines, by from two to six weeks.

In steel products there was no market movement in November. The buying was fully as light as in October, but there was a marked change in the price alignment. Throughout the decline in prices, lasting over several months, it was recognized that the market was simply stagnating downwards; the new low prices coming out were not developed by keen efforts to effect sales but represented simply a dull sagging. By the end of November the steel mills had evidently made up their minds that the time for the last concessions had arrived. In bars, plates and shapes they began naming 1.05c., Pittsburgh, freely, but on first quarter contracts 1.10c, thus endeavoring to move buyers to dig up specifications and place actual shipping orders. In this effort they seem likely to attain considerable success during December. In the Chicago district still lower prices than the equivalent to Pittsburgh have been freely made.

Trends in the Trade.

There is no trend in steel production, which remains stationary at about 35% of capacity. On the one hand there would be prospects of an early increase, were this any other time in the year, but general closings over the holidays are the rule in a dull market, and thus the December average is likely to be lower than the present rate. It is almost inconceivable that January should do otherwise than

FINISHED STEEL PRICES.

(Average from daily quotations, f.o.b. Pittsburgh.)

	Shapes.	Plates.	Bars.	Pipe.	Wire.	Wire Nails.	Cut Nails.	Sheets Black.	Sheets Galv.	Tin plate.	Composite Finished steel.
1913—											
January	1.50	1.50	1.40	80	1.55	1.75	1.70	2.72	3.47	3.60	1.7737
February ..	1.45	1.45	1.40	80	1.55	1.75	1.70	2.35	3.50	3.60	1.7625
March	1.45	1.45	1.40	80	1.56	1.76	1.70	2.35	3.50	3.60	1.7646
April	1.45	1.45	1.40	79¾	1.60	1.80	1.70	2.35	3.45	3.60	1.7743
May	1.45	1.45	1.40	79¼	1.60	1.80	1.70	2.35	3.40	3.60	1.7786
June	1.45	1.45	1.40	79	1.55	1.75	1.70	2.29	3.38	3.60	1.7719
July	1.45	1.45	1.40	79	1.50	1.70	1.70	2.25	3.31	3.60	1.7600
August	1.45	1.44	1.40	79¾	1.47	1.67	1.60	2.20	3.25	3.60	1.7400
September .	1.40	1.40	1.40	80	1.43	1.63	1.60	2.12	3.17	3.60	1.7093
October ...	1.39	1.36	1.39	80	1.40	1.60	1.60	2.04	3.08	3.50	1.6779
November .	1.34	1.29	1.30	80	1.40	1.60	1.60	1.98	2.98	3.40	1.6203
December ..	1.24	1.21	1.22	80	1.35	1.55	1.60	1.90	2.90	3.40	1.5558
Year	1.42	1.41	1.38	79¾	1.50	1.70	1.66	2.21	3.28	3.56	1.7241
1914—											
January	1.20	1.20	1.20	80	1.33	1.53	1.60	1.86	2.86	3.40	1.5394
February ..	1.25	1.21	1.22	79¾	1.40	1.60	1.60	1.95	2.95	3.40	1.5794
March	1.21	1.18	1.20	79¾	1.40	1.60	1.60	1.95	2.95	3.40	1.5638
April	1.18	1.15	1.15	79¾	1.40	1.60	1.60	1.90	2.89	3.39	1.5337
May	1.15	1.14	1.14	80	1.38	1.58	1.60	1.85	2.79	3.30	1.5078
June	1.12	1.10	1.12	80	1.30	1.50	1.58	1.81	2.75	3.30	1.4750
July	1.12	1.11	1.12	80	1.32	1.52	1.55	1.80	2.75	3.30	1.4805
August	1.18	1.18	1.18	80	1.37	1.57	1.55	1.88	2.87	3.50	1.5421
September..	1.20	1.19	1.19	80	1.40	1.60	1.55	1.98	2.97	3.48	1.5630
October ...	1.16	1.14	1.15	80	1.40	1.60	1.55	1.96	2.96	3.25	1.5236
November .	1.11	1.09	1.11	81	1.39	1.59	1.55	1.88	2.88	3.25	1.4769

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show an improvement, as was the case a year ago even though then the market was not, as we have since learned, in the early stages of a general recovery such as certainly cannot now be postponed for long.

In pig iron the trend in production has continued downward, chiefly because the production had been quite in excess of the tonnage the steel mills could absorb. It is expensive to blow out a furnace and blow it in again, and it is cheaper to stock pig iron for a couple of months, hence as mill operations decrease the steel mills are tempted by hopes of an early improvement to keep their furnaces in blast, and this they did to too great an extent, with the result that a very considerable blast furnace curtailment was forced in November when there was not a corresponding decrease in steel mill operations. Pig iron is still being produced by the steel works in excess of their requirements. With the merchant stacks the curtailment seems to have gone far enough a month or two ago and the rate is now practically stationary.

In prices pig iron is evidently rounding a turn, for the developments of the past fortnight have been advances in districts where the sales have been heavy, and sufficient for the nearby requirements of the producers, and declines in the districts that must still sell much iron to be placed in comfortable position. Buffalo and Chicago are in the former class, the south

U. S. STEEL CORPORATION'S OPERATIONS.

EARNINGS AND UNFILLED ORDERS.

Earnings by Quarters.

Net earnings by quarters since 1908:

Quarter.	1914.	1913.	1912.
1st	$17,994,381	$34,426,801	$17,826,973
2nd	20,457,596	41,210,813	25,102,265
3rd	22,276,002	38,450,400	30,063,512
4th	.....	23,036,349	35,185,557
Year	.....	137,133,363	108,178,307
	1911.	1910.	1909.
1st	$23,519,203	$37,616,876	$22,921,268
2nd	28,108,520	40,170,960	29,340,491
3rd	29,522,725	37,365,187	38,246,907
4th	23,155,018	25,901,730	40,982,746
Year	104,305,466	141,054,753	131,491,412

Unfilled Orders.

(At end of the Quarter):

	First.	Second.	Third	Fourth.
1903..	5,410,719	4,666,578	3,278,742	3,215,123
1904..	4,136,961	3,192,277	3,027,436	4,696,203
1905..	5,579,560	4,829,655	5,865,377	7,605,086
1906..	7,018,712	6,809,584	7,936,884	8,489,718
1907..	8,043,858	7,603,878	6,425,008	4,642,553
1908..	3,765,343	3,313,876	3,421,977	3,603,527
1909..	3,542,590	4,057,939	4,796,833	5,927,031
1910..	5,402,514	4,257,794	3,158,166	2,674,757
1911..	3,447,301	3,361,058	3,611,317	5,084,761
1912..	5,304,841	5,807,346	6,551,507	7,932,164
1913..	7,468,956	5,807,317	5,003,785	4,282,108
1914..	4,653,825	4,032,857	3,787,667	.....

BOOKINGS AND SHIPMENTS.

In this table, first two columns, percentages of bookings and shipments to total capacity, are our estimates, while last column is derived from official reports of "unfilled tonnage" while third percentage column is directly computed from this tonnage column.

1912—	Shipments. %	Bookings. %	Difference. %	Difference. Tons.
November .	96	120	+24	+258,512
December ..	97	104	+ 7	+ 79,281
January 1913	98	89	— 9	—104,796
February ..	98	82	—16	—170,654
March	93	77	—16	—187,758
April	93	51	—42	—490,194
May	95	41	—54	—654,440
June	93	47	—46	—517,005
July	90	55	—35	—407,961
August	90	75	—15	—175,888
September .	82	74	—18	—219,683
October ...	87	74	—40	—490,018
November ..	70	59	—11	—117,420
December ..	50	40	—10	—114,239
January 1914	55	83	+28	+331,572
February ...	67	105	+38	+412,764
March	72	40	—32	—372,615
April	67	35	—32	—376,757
May	62	37	—25	—278,908
June	63	66	+ 3	+ 34,697
July	64	75	+11	+125,732
August	67	72	+ 5	+ 54,742
September ..	62	24	—38	—425,664
October ...	55	28	—27	—326,570

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being in the latter.

In steel products the trend has been downward in the products that have taken the lead, bars, plates and shapes. In other products such as sheets and wire products, it is possible there will be slight further declines to find the trading basis. It is perfectly clear that the whole steel market is finding its level, an extremely low one, and that very soon indeed such business will have been done as will enable all producers to advance their prices.

Export Trade.

The condition continues that there is considerable export trade in materials intended ultimately for war purposes, and that the normal trade with neutral countries is very small. The total bookings of export orders in November were in excess of those in any previous month since the war started. In the case of tin plate the export trade has been looking up in remarkable fashion. Great Britain has practically embargoed tin plate and the American mills have excellent prospects. They have already booked large orders for Canada.

Tin Plate.

The annual event in the tin plate trade, the naming of the new "season price" occurred Thursday, December 4th, the American Sheet & Tin Plate Company announcing a price of $3.20, for 100-pound coke tins.

This, however, is not strictly a season price, as the announcement as authorized is only of a price for the first six months of the year. No effort is made to suggest that tin plate will not be sold for the whole season in any case, but it is represented that this will be done only in the case of certain consumers, and then at a price higher than would be named to such consumers for the six months only. The change in the period is due to the particularly great uncertainty as to prices and supplies of raw materials, including sheet bars and pig tin in particular. Last season's price, announced November 3, 1913, was $3.40, the lower price this time being due to cheaper raw materials.

Pig Iron.

Price changes in November included a decline of 25 cents at Chicago, reported November 13th, and an advance of 50 cents at Buffalo, reported November 25th. At the beginning of December a decline of 25 cents in southern iron, to $9.75, and an advance of 50 cents in Chicago iron, were reported. The general movement in pig iron prices is shown by the following compilation of the price of our **composite pig iron** on the first day of each month, the change that occurred during the month being also shown.

	On first of month.	Change during month.
January (1913)	17.150	—17.5c
February	17.275	—33.0
March	16.945	—32.0
April	16.621	—61.0
May	16.015	—76.5
June	15.250	—55.0
July	14.700	—25.0
August	14.450	+17.5
September	14.625	+15.0
October	14.775	—20.0
November	14.525	—47.5
December	14.050	—50.5
January (1914)	13.545	—12.0
February	13.425	+45.0
March	13.875	— 2.5
April	13.85	0.0
May	13.85	—17.5
June	13.675	—12.5
July	13.60	—10.0
August	13.50	— 0.5
September	13.495	—12.0
October	13.375	30.0
November	13.075	+ 0.5
December	13.08	

PRICE CHANGES.

Price changes in merchant bars, structural shapes, plates, wire nails merchant pipe, sheets and tin plates are given below, with dates. These are the commodities used in compiling our **composite finished steel.** In some cases the dates named are those upon which prominent producers announced price changes, but more frequently dates are merely those upon which our quotations were changed.

1912—			
Dec. 10	Wire nails	1.70	to 1.75
1913—			
Jan. 2	Pipe	79%	to 80%
" 14	Sheets	2.25	to 2.35
Feb.1	Plates	1.50	to 1.45
" 1	Shapes	1.50	to 1.45
Mar. 24	Wire nails	1.75	to 1.80
April 14	Pipe	80%	to 79½%
May 27	Pipe	79½%	to 79%
June 2	Wire nails	1.80	to 1.75
" 11	Sheets	2.35	to 2.30
" 18	Sheets	2.30	to 2.25
July 1	Wire nails	1.75	to 1.70
Aug. 9	Pipe (¾-3-in.)	79%	to 80%
" 12	Wire nails	1.70	to 1.65
" 21	Sheets	2.25	to 2.15
" 27	Plates	1.45	to 1.40
Sept. 1	Shapes	1.45	to 1.40
" 22	Sheets	2.15	to 2.05
Oct. 2	Tin plates	3.60	to 3.50
" 3	Wire nails	1.65	to 1.60
" 16	Plates	1.40	to 1.35
" 21	Plates	1.35	to 1.30
" 23	Shapes	1.40	to 1.35
" 24	Sheets	2.05	to 2.00
" 27	Pipe	2½% extra discount	
" 28	Bars	1.40	to 1.35
Nov. 3	Tin plate	3.50	to 3.40
" 7	Bars	1.35	to 1.30
" 17	Sheets	2.00	to 1.95
" 25	Bars	1.30	to 1.25
" 25	Plates	1.30	to 1.25
" 25	Shapes	1.35	to 1.30
" 28	Wire nails	1.60	to 1.55
Dec. 2	Sheets	1.95	to 1.90
" 3	Shapes	1.30	to 1.25
" 4	Plates	1.25	to 1.20
" 11	Bars	1.25	to 1.20
" 22	Shapes	1.25	to 1.20
Dec. 31	Sheets	1.90	to 1.80
1914—			
Jan. 6	Wire nails	1.55	to 1.50
" 7	Sheets	1.80	to 1.85
" 13	Wire nails	1.50	to 1.55
" 23	Sheets	1.85	to 1.90
" 30	Sheets	1.90	to 1.95
Feb. 2	Pipe	80%	to 79½%
" 2	Wire nails	1.55	to 1.60

1914—			
" 4	Shapes	1.20	to 1.25
Mar. 9	Shapes	1.25	to 1.20
" 20	Plates	1.20	to 1.15
April 1	Bars	1.20	to 1.15
" 8	Sheets	1.95	to 1.90
" 17	Shapes	1.20	to 1.15
" 20	Pipe	79½%	to 80%
" 27	Sheets	1.90	to 1.85
" 29	Tin plates	3.40	to 3.30
May 19	Bars	1.15	to 1.12½
" 22	Wire nails	1.60	to 1.55
" 26	Shapes	1.15	to 1.12½
" 29	Plates	1.12½	to 1.10
" 29	Wire nails	1.55	to 1.50
June 9	Sheets	1.85	to 1.80
" 19	Bars	1.12½	to 1.10
" 19	Shapes	1.12½	to 1.10
July 20	Wire nails	1.50	to 1.55
" 21	Bars	1.10	to 1.15
" 21	Shapes	1.10	to 1.15
" 23	Plates	1.10	to 1.15
" 30	Tin plate	3.30	to 3.35
Aug. 5	Tin plate	3.25	to 3.40
" 6	Sheets	1.80	to 1.85
" 11	Sheets	1.80	to 1.85
" 11	Bars	1.15	to 1.20
" 11	Shapes	1.15	to 1.20
" 14	Tin plate	3.40	to 3.60
" 21	Wire nails	1.55	to 1.60
" 31	Sheets	1.90	to 2.00
Sept 16	Tin plate	3.60	to 3.30
" 26	Sheets	2.00	to 1.95
" 29	Bars	1.20	to 1.15
" 29	plates	1.20	to 1.15
" 30	Tin plate	3.30	to 3.25
Oct. 5	Sheets	1.95	to 2.00
" 7	Shapes	1.20	to 1.15
" 22	Sheets	2.00	to 1.90
" 27	Plates	1.15	to 1.10
Nov. 2	Pipe (extra 2½% removed)	80%	to 81%
" 5	Bars	1.15	to 1.10
" 5	Shapes	1.15	to 1.10
" 18	Sheets	1.90	to 1.85
" 24	Plates	1.10	to 1.05
" 24	Wire nails	1.60	to 1.55
Dec. 1	Bars	1.10	to 1.05
" 1	Shapes	1.10	to 1.05

COMPOSITE STEEL.

Computation for December 1, 1914

Pounds.	Group	Price	Dollars.
2	Bars	1.05	2.025
1	Plates	1.05	1.575
1	Shapes	1.10	1.575
[illegible]	Pipe (4 in.)	1.90	2.850
1½	Wire nails	1.55	2.325
1	Sheets (28 bl.)	1.85	1.850
[illegible]	Tin plates	3.25	1.625
10 pounds			14.425
	One pound		1.4425

(Averaged from daily quotations.)

	1910.	1911.	1912.	1913.	1914.
Jan...	1.8625	1.7415	1.5123	1.7737	1.5394
Feb..	1.8475	1.7520	1.4878	1.7625	1.5794
Mar..	1.8475	1.7590	1.4790	1.7646	1.5638
April.	1.8400	1.7600	1.5206	1.7742	1.5337
May.	1.8325	1.7510	1.5590	1.7786	1.5078
June.	1.7955	1.6817	1.5794	1.7719	1.4750
July.	1.7755	1.6701	1.6188	1.7600	1.4805
Aug..	1.7550	1.6394	1.6784	1.7400	1.5421
Sept..	1.7470	1.6090	1.7086	1.7093	1.5632
Oct..	1.7350	1.5461	1.7588	1.6779	1.5236
Nov..	1.7305	1.4930	1.7750	1.6203	1.4769
Dec..	1.7380	1.4812	1.7789	1.5558	.....
Year.	1.7922	1.6570	1.6214	1.7241	.....

SCRAP IRON & STEEL PRICES.

	Melting Steel. Pitts.	Bundled Sheet. Pitts.	No. 1 R. R. Wrought, Pitts.	No. 1 Cast, Pitts.	No. 1 Steel, Phila.	Heavy Melt'g, Chi'go.
1912—						
Year	13.76	11.92	14.16	13.28	13.82	12.30
1913—						
Mar.	14.35	11.60	15.35	14.60	13.60	12.50
Apr.	14.25	10.50	15.50	14.50	13.75	12.60
May	13.50	10.00	15.00	14.25	12.25	11.50
June	13.20	9.25	14.25	13.50	11.50	10.75
July	12.50	8.75	13.35	12.30	11.15	10.60
Aug.	12.40	8.25	13.25	12.50	11.85	10.75
Sep.	12.60	8.00	13.00	12.50	12.25	10.60
Oct.	12.25	7.40	13.00	12.40	11.20	10.35
Nov.	11.40	6.75	11.85	12.00	10.30	10.25
Dec.	11.00	6.40	11.65	11.60	9.75	9.25
Year	13.07	9.33	13.91	13.29	12.12	11.21
1914—						
Jan.	11.25	7.00	12.20	12.00	10.50	9.25
Feb.	12.00	8.25	12.80	12.50	11.50	10.70
Mar.	12.25	9.00	12.85	12.40	11.50	10.50
Apr.	12.25	9.00	12.00	12.15	10.80	10.00
May	11.75	9.10	11.75	12.25	10.60	10.00
June	11.75	9.10	11.75	12.25	10.50	9.80
July	11.75	8.50	11.75	11.50	10.60	9.75
Aug.	11.50	8.50	11.50	11.25	10.75	9.75
Sep.	11.25	8.70	10.50	11.25	10.75	9.25
Oct.	10.75	8.50	10.25	11.25	10.00	9.00
Nov.	10.10	8.10	10.25	10.75	9.25	8.25

COMPOSITE PIG IRON.

Computation for December 1, 1914

One ton No. 2 foundry, valley	$12.75
Two tons basic, valley (12.50)	25.00
One ton No. 2 foundry, valley	12.75
One ton No. 2 foundry, Philadelphia	14.25
One ton No. 2X foundry, Buffalo	12.75
One ton No. 2 foundry, Cleveland	13.50
One ton No. 2 foundry, Chicago	13.00
Two tons No. 2 Southern foundry, Cincinnati (12.90)	25.80
Total, ten tons	$130.80
One ton	$13.080

Averaged from daily quotations:

	1910.	1911.	1912.	1913.	1914.
Jan...	17.598	14.375	13.420	17.391	13.492
Feb..	17.215	14.340	13.427	17.140	13.721
Mar..	16.702	14.425	13.581	16.775	13.843
April	16.315	14.375	13.779	16.363	13.850
May .	15.750	14.242	13.917	15.682	13.808
June.	15.320	14.032	14.005	14.968	13.606
July .	15.131	13.926	14.288	14.578	13.520
Aug..	14.727	13.874	14.669	14.565	13.516
Sep...	14.612	13.819	15.386	14.692	13.503
Oct..	14.435	13.692	16.706	14.737	13.267
Nov..	14.415	13.532	17.226	14.282	13.047
Dec..	14.408	13.430	17.475	13.838	.....
Year.	15.552	14.005	14.823	15.418	.....

UNFINISHED STEEL AND IRON BARS.

(Averaged from daily quotations.)

	Billets. Pitts.	Sheet bars. Pitts.	Rods. Pitts.	— Iron bars, deliv.— Phila.	Pitts.	Chi'go.
1913—						
May	27.00	27.50	30.00	1.68	1.65	1.55
June	26.50	27.50	29.00	1.61	1.65	1.50
July	26.50	27.50	28.50	1.55	1.65	1.50
Aug.	25.75	26.50*	28.00	1.42	1.62	1.44
Sep.	24.00*	25.00*	27.37	1.33	1.59	1.37
Oct.	22.50	23.25	26.50	1.32	1.54	1.27
Nov.	20.50	21.50	26.00	1.30	1.45	1.15
Dec.	20.00	21.00	25.25	1.25	1.37	1.12
Year	25.55	26.43	28.39	1.51	1.59	1.45
1914—						
Jan.	20.00	20.25*	25.75	1.24	1.35	1.11
Feb.	21.00	22.00	26.00	1.28	1.35	1.14
Mar.	21.00	22.00	26.00	1.28	1.35	1.15
Apr.	20.75	21.75	25.50	1.23	1.31	1.14
May	20.00	21.00	26.00	1.23	1.29	1.10
June	19.50	20.35	25.00	1.23	1.25	1.08
July	19.50	20.00	25.00	1.19	1.25	1.06
Aug.	20.17	21.08	25.25	1.18	1.25	1.07
Sep.	20.75	21.75	26.00	1.18	1.20	1.07
Oct.	20.00	20.70	26.00	1.14	1.20	1.01
Nov.	19.25	19.75	25.00	1.13	1.20	.96

* Premiums for Bessemer.

SEPTEMBER IRON AND STEEL IMPORTS AND EXPORTS.

Iron and steel exports showed an increase in September over August, and thus it may be concluded that August was the low month in the export movement. There were many who expected September, or even October, to prove to be the low month. One may now reasonably expect monthly increases for some time to come. The tonnage figures compare as follows:

	Gross tons.
Monthly average, first six months, 1914	141,000
July	114,790
August	86,599
September	96,476

There were radical changes in the distribution among the different products from July to August, and there are now considerable changes from August to September, even though the total tonnage increased only 12%. Billets, sheet bars, etc., decreased decidedly, the September exports being almost negligible. Structural material, plates and cast pipe and fittings decreased considerably, while on the other hand wrought pipe underwent a large increase, as did pig iron. Horse shoes stand out prominently, with an increase from 40 tons in August to 1,309 tons in September. Barb wire does not show a large tonnage, despite the report of heavy buying by the belligerents, and this is doubtless because our exports of barb wire to neutral countries fell off a great deal. The July exports of barb wire were 7,074 tons, August showing 4,753 tons and September 4,945 tons. Wire rods, by the way, have increased considerably, but amounted to only 1,913 tons in September.

The iron and steel imports furnish three surprises. Pig iron, ferromanganese, etc., not including ferrosilicon, increased from 12,765 tons in August to 23,975 tons in September, rails increased from 2,070 tons to 7,342 tons, while cotton ties disappeared entirely.

Manganese ore imports in September were 32,245 tons, decidedly a large quantity as it is above the monthly average in the best calendar year we have had. The total for the nine months is 215,274 tons, approximately the average in the half dozen calendar years prior to 1912, and being for nine months only were at a rate one-third greater than in those years.

IRON AND STEEL EXPORTS.

1914—Gross Tons.	July.	August.	September.
Scrap	3,642	1,460	824
Pig iron	9,371	2,918	7,915
Billets, sheet bars, etc.	2,955	2,714	649
Wire rods	347	855	1,913
Rails	9,550	10,030	10,508
Steel bars	8,164	5,271	6,254
Iron bars	556	593	344
Structural	14,388	15,851	14,090
Hoops, etc.	846	413	456
Steel plates	7,172	7,184	5,722
Steel sheets	9,663	6,892	8,248
Galvanized sheets	3,103	2,179	3,242
Iron sheets and plates	823	628	488
Tin plates	8,213	5,296	4,726
Cast pipe and fittings	6,711	6,130	3,996
Wrought pipe and fittings	10,621	7,111	12,273
Barb wire	7,074	4,753	4,945
Other wire	6,142	3,012	4,294
Railroad spikes	813	796	382
Cut nails and spikes	335	132	102
Wire nails and spikes	2,474	1,133	2,079
Tacks, etc.	212	152	349
Bolts, nuts, rivets, washers	1,280	693	1,109
Horseshoes	82	40	1,309
Cast radiators	253	363	259
Totals	114,790	86,599	96,476

IRON AND STEEL IMPORTS.

1914—Gross Tons.	July.	August.	September.
Scrap	3,056	3,469	2,142
Ferrosilicon	623	1,113	355
All other pig iron	11,526	12,765	23,975
Blooms, etc., not alloyed	216	187	46
Blooms, etc. alloyed	3,394	3,459	3,078
Wire rods	406	171	150
Rails	1,236	2,070	7,342
Structural	671	1,909	396
Bar iron	3,001	1,615	609
Cotton ties	325	197	0
Sheets and plates	486	271	235
Tin plates	342	1,542	92
Total	25,282	28,768	38,420

IRON AND STEEL IMPORTS AND EXPORTS.

VALUE OF TONNAGE AND NON-TONNAGE.

	1909.	1910.	1911.	1912.	1913.	1914.
January	$10,329,388	$14,513,394	$18,738,391	$18,451,914	$25,141,409	$16,706,836
February	10,947,159	13,949,082	18,690,792	21,801,570	24,089,871	16,520,260
March	13,873,746	17,253,503	22,591,991	24,474,799	27,221,210	20,551,137
April	13,058,297	16,529,260	24,916,912	26,789,853	27,123,044	20,639,569
May	12,964,367	17,658,042	20,616,795	28,050,247	26,718,970	19,734,045
June	13,779,736	16,503,204	20,310,053	24,795,802	25,228,346	18,927,958
July	11,866,772	16,108,102	17,454,772	24,917,952	24,170,704	16,737,552
August	14,134,487	17,628,537	20,013,557	25,450,107	23,947,440	10,428,773
September ...	12,966,908	16,776,178	19,875,308	23,286,040	22,831,082	12,521,102
October	14,249,598	17,452,085	20,220,833	25,271,559	25,189,745	
November ...	14,434,690	18,594,806	20,823,061	26,406,425	20,142,141	
December ...	15,069,246	18,300,710	22,186,996	23,750,864	22,616,701	
Totals ...	$157,674,394	$201,271,903	$249,656,411	$289,128,420	$294,455,060	$152,776,838

EXPORTS OF TONNAGE LINES— Gross Tons.

	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January	102,630	74,353	70,109	118,681	152,362	151,575	249,493	118,770
February	87,912	81,773	84,837	110,224	150,919	204,969	241,888	121,206
March	112,787	96,681	94,519	124,980	216,360	218,219	257,519	159,998
April	132,790	93,285	100,911	117,921	228,149	267,313	259,689	161,952
May	91,543	64,041	109,808	135,306	178,589	307,656	242,353	139,107
June	92,996	69,770	114,724	120,601	174,247	273,188	243,108	144,003
July	122,240	86,796	100,850	127,578	162,855	272,778	237,159	114,790
August	118,792	86,244	105,690	131,391	177,902	282,645	209,856	86,599
September ...	114,819	76,732	97,641	119,155	181,150	248,613	213,057	96,476
October	123,170	85,766	110,821	129,828	186,457	251,411	220,495	.....
November	116,309	71,130	116,105	155,138	187,554	233,342	175,961	.....
December	86,019	77,659	137,806	150,102	190,854	235,959	195,719	.....
Totals	1,301,979	961,242	1,243,567	1,540,895	2,187,724	2,948,466	2,759,232	1,142,901

IRON ORE IMPORTS.

	1911.	1912.	1913.	1914.
Jan. ...	102,600	154,118	175,463	101,804
Feb. ...	94,820	129,693	188,734	112,574
Mar. ..	134,785	157,469	164,865	68,549
April ..	133,900	178,502	174,162	111,812
May ..	217,467	194,482	191,860	125,659
June ...	118,296	180,122	241,069	188,647
July ...	200,845	185,677	272,017	141,838
Aug. ..	175,183	178,828	213,139	135,693
Sept. ..	184,456	180,571	295,424	109,176
Oct. ...	172,459	202,125	274,433	.....
Nov. ..	128,019	163,017	179,727	.....
Dec. ..	148,902	199,982	223,933	.....
Totals	1,811,752	2,104,576	2,594,826	1,095,752

IRON AND STEEL IMPORTS.

	1910.	1911.	1912.	1913.	1914.
Jan..	56,207	35,071	20,008	21,740	17,835
Feb..	43,613	20,812	11,622	25,505	14,309
Mar..	54,176	23,533	15,466	27,467	27,829
April	47,698	22,392	12,481	25,742	30,585
May.	42,569	23,347	15,949	28,728	28,169
June.	30,322	29,399	21,407	36,597	23,076
July .	41,933	15,782	17,882	39,694	25,282
Aug..	36,879	10,944	20,571	18,740	28,768
Sept.	30,961	14,039	18,740	19,941	38,420
Oct..	31,455	21,035	25,559	20,825	. .
Nov..	40,585	13,880	24,154	25,809	. .
Dec..	31,575	19,665	21,231	26,45?	. .
Total	487,973	256,903	225,072	317,244	284,253

BRITISH IRON AND STEEL EXPORTS

According to the Board of Trade returns, in tons of 2,240 pounds:

1913—	Pig iron.	Rails.	Tin Plates.	Total*
Jan. ..	101,964	35,523	46,260	448,186
Feb. ..	63,961	41,849	33,374	363,551
Mar. ..	90,012	34,064	41,579	398,621
April ..	101,413	46,081	41,882	470,040
May ..	97,093	45,025	50,441	463,197
June ..	91,913	52,073	41,483	427,148
July ..	96,135	53,570	43,166	455,626
Aug. ..	101,843	44,637	36,274	396,656
Sept. ..	106,525	26,283	36,572	394,849
Oct. ..	99,588	40,625	40,733	435,534
Nov. ..	100,235	40,140	44,317	430,113
Dec. ..	74,133	40,744	38,840	373,354
Year	1,124,815	500,614	494,921	5,050,919
1914—				
Jan. ..	82,182	57,904	43,164	467,449
Feb. ..	59,832	35,484	41,744	353,861
Mar. ..	92,364	40,207	40,863	414,902
April ..	93,396	30,682	44,296	394,535
May ..	95,037	56,881	48,628	437,648
June ..	88,569	39,700	36,565	356,066
July ..	74,617	43,133	47,237	385,301
Aug. ..	28,342	22,763	21,414	211,605
Sept. ..	37,793	39,185	23,440	228,992
Oct. ...	47,188	37,005	26,950	263,834
10 mos.	699,320	402,944	374,301	3,524,193

* Includes scrap, pig iron, rolled iron and steel cast, and wrought iron manufactures, bolts, nuts, etc., but not finished machinery, boilers, tools, etc.

CAR BUYING.

Freight cars ordered:		
First half 1913	114,000	
Second half 1913	33,000	
Year 1913		147,000
January, 1914	10,000	
February	13,000	
March	7,000	
April	10,000	
May	9,000	
June	15,000	
July	6,800	
August	3,100	
September	95	
October	1,725	
November	550	
Eleven months, 1914		76,000
Equivalent rate per year		83,000

RAILROAD EARNINGS.

The following table is compiled from the monthly reports of the Interstate Commerce Commission, and cover all railroads in the United States having gross income of $1,000,000 or over per year. The statements are per mile of road operated, and show gross revenue from operations, operating expenses and net operating revenue.

	1911-12			1912-13			1913-14		
	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.
July ...	$1,025	$698	$327	$1,113	$750	$363	$1,161	$814	$348
Aug. ...	1,119	726	393	1,211	776	435	1,219	831	388
Sept. ...	1,127	725	411	1,206	775	430	1,237	832	405
Oct. ...	1,175	74	425	1,311	827	484	1,294	870	424
Nov. ...	1,093	734	360	1,213	806	407	1,163	824	339
Dec. ...	1,046	720	326	1,159	799	360	1,100	800	299
Jan. ...	932	728	203	1,087	803	284	1,005	776	229
Feb. ...	964	710	254	1,011	752	259	900	729	171
Mar. ...	1,051	746	305	1,081	799	282	1,076	782	294
April ..	974	717	257	1,065	802	262	1,021	763	258
May ...	1,030	735	295	1,150	830	320	1,030	779	250
June ...	1,075	737	339	1,135	801	334	1,079	768	311
[illegible]	$12,605	$8,718	$3,888	$13,730	$9,514	$4,216	$13,267	$9,558	$3,709

Beginning July 1, 1914, a new system was established, whereby the railroads, instead of reporting figures as given above, and then reporting in addition the "net revenue from outside operation" (boat lines, electric lines, cabs, etc.) must include such revenue with total operating revenue. With the fresh figures as reported under the new system are given figures for the month a year earlier, compiled in the same manner, for comparative purposes:

	1913-14			1914-15		
	Revenue.	Expenses.	Net.	Revenue.	Expenses.	Net.
July	$1,183	$837	$346	$1,124	$785	$339
[illegible]	1,244	856	388	1,175	789	386
[illegible]	1,257	854	403	1,182	781	401

COPPER.

COPPER IN NOVEMBER.

November will be remembered as the month in which the copper market first recovered from the depression caused by the great war in Europe. It witnessed a complete change in the sentiment of the market and saw prices advance nearly 2c per pound, or in other words nearly regain the losses sustained in the three previous months by the disruption of our foreign trade on account of the war. That this should have come about without there being any material improvement in the export situation, testifies that the reorganization of the industry to the new condition of things has been carried to a successful ending. Unfortunately no statistics are being issued by copper producers so it is impossible to say accurately how the balance between supply and demand now stands, but there could have been no such advance in copper prices in November had the demand not exceeded the month's production. If as is generally estimated the output of refined copper was cut down to about 80,000,000 pounds in November then there is no reason to doubt that stocks were reduced by some 20,000,000 pounds, the first decrease since April. There is also the guarantee of a further decrease in the surplus stocks in the next few months by the large deliveries to be made to consumers against their November purchases. It will in a way be a transferal of copper from producers' warehouses to consumers' plants, whose stocks had been allowed to run down very low, and if this is combined with a real improvement in consumption the market will be in a good way not only to maintain what it has gained but also score a further advance.

The strange thing about the advance in November was that it came about just when the export situation looked the worst. England had declared copper actual contraband of war and nearly every shipment to Italy and Scandinavia was being seized, with the result that the Italian steamship lines absolutely refused to accept copper consignments. Holland a short time before had placed an embargo on the metal and the exports to that country had ceased altogether. In spite of these facts and despite the protests of some of the American producers to our Secretary of State, the exports of copper would be limited to England and France together with only such amounts as would be actually consumed in the neutral countries in Europe. It appeared that a stop had been put to the shipments to Germany either by way of Holland, Italy or Scandinavia and that we were facing a further shrinkage in our foreign trade. Yet at that very moment some large English orders were placed, followed by some well advertisedorders for home account, and almost before the trade were aware of it a well defined buying movement had set in which continued almost without a break throughout the last three weeks in November. The early purchases were at the 11.25 basis and from that up to 12.75c. Consumers had weakened their position by overstaying the market and seeing that the price was advancing they did not dare take further chances. At the end of October and in the early part of November they had several opportunities to buy cheaply but by holding out for the last fraction they missed the market and later on when they came in in a body they continually bid prices up on themselves. The whole incident has proved the power of sentiment, which commenced to undergo a change for the better immediately after the elections and which has since continued to improve each week. While other explanations can be given for the rise in copper to 13 the real cause was the restoral of confidence, not as applied to copper alone, but to the whole financial and business structure of the country. A contributing cause was the renewal of speculation in England but the fact that the speculation was on the bull side is only another illustration of the improved sentiment regarding the outlook in America. For unless England regarded our prospects as being favorable she would not have assisted in the advance which has taken place. There is also the knowledge that there will be an enormous demand for copper when the war ends, and while this may be sometime in the future there are consumers and dealers both here and abroad who are willing to act well in advance in order to profit by a situation which promises to have no

COPPER.

parallel.

The export situation is not what it might be desired for while there is talk on every hand of the large orders being placed by Europe, and the increase in shipments, the outstanding fact remains that Germany, our largest customer and who last year took over 200,000 tons of our copper direct or via Holland, is completely cut off from us. England, by the control of the seas, is determined to prevent copper from reaching Germany direct or by way of neutral countries and while some small quantities may slip through we are facing a loss of 16,000 or 17,000 tons a month in exports until the war ends. That leaves us with a foreign market of probably not over 15,000 tons a month (30,000,000 to 40,000,000 pounds). This loss in trade is what compelled the curtailment in output and so long as the war lasts the restriction will have to be enforced, otherwise we would very soon return to the conditions which we faced in August and September. There is of course the possibility that the higher prices will bring about a larger output, and now that the crisis has been passed we should think that it would be to the interest of the producers themselves to resume their monthly statisics. These satistics have done good service in the past by enabling the producers to know how to regulate their operations and certainly if consumers have any rights in the matter the figures should be resumed. It would be good news to the trade to hear that beginning with January the statistics will be issued regularly as heretofore.

SHEET COPPER PRICE CHANGES.

1914—	Sheet Copper.	Lake Copper.
January 2	20.25	15.37½
February 2	20.00	15.12½
March 13	19.75	14.50
May 13	19.50	14.45
May 22	19.25	14.43¾
June 15	19.00	14.18¾
July 27	18.50	13.43¾
August 15	18.00	12.62½
September 1	17.50	12.62½
October 1	17.00	12.12½
October 22	16.50	11.50
November 19	17.00	12.25
November 23	17.50	12.62½
November 30	18.00	12.75

WATERBURY AVERAGES.

	Copper — Lake — 1913.	Copper — Lake — 1914.	Copper — Electro 1914.	Spelter 1913.	Spelter 1914.
Jan...	17.00	14.75	.....	7.56	5.54
Feb..	15.50	15.12½	.....	6.81	5.70
Mar..	15.12½	15.00	14.50	6.56	5.59
April	15.75	14.87½	14.37½	6.08	5.50
May..	15.87½	14.75	14.25	5.77	5.38
June.	15.37½	14.37½	13.87½	5.50	5.37
July.	14.75	14.12½	13.62½	5.61	5.26
Aug. .	15.62½	13.00	.....	5.99	5.66
Sept..	16.87½	12.87½	.....	6.13	5.91
Oct..	16.87½	12.25	.....	5.74	5.23
Nov.	16.25	12.25	.....	5.60	5.38
Dec..	15.00	.....	.....	5.44	....

COPPER PRICES IN NOVEMBER.

	New York — Lake. Cents.	New York — Electro. Cents.	New York — Casting. Cents.	London, Standard (Prompt). £	s	d
1	.....	.....	.....	.....		
2	11.55	11.12½	11.05	50	5	0
3	.....	.....	.....	50	0	0
4	11.35	11.12½	11.05	50	0	0
5	11.35	11.15	11.06¼	49	17	6
6	11.35	11.15	11.06¼	50	0	0
7	.....	.....	.....	.....		
8	.....	.....	.....	.....		
9	11.35	11.15	11.06¼	50	5	0
10	11.35	11.15	11.06¼	50	10	0
11	11.40	11.20	11.10	50	15	0
12	11.45	11.30	11.15	51	5	0
13	11.67½	11.50	11.30	51	12	6
14	.....	.....	.....	.....		
15	.....	.....	.....	.....		
16	11.81¼	11.70	11.55	52	17	6
17	11.93¾	11.80	11.70	53	0	0
18	12.12½	11.93¾	11.81¼	53	15	0
19	12.25	12.05	11.92½	53	17	6
20	12.37½	12.20	12.05	54	5	0
21	.....	.....	.....	.....		
22	.....	.....	.....	.....		
23	12.62½	12.43¾	12.31¼	55	5	0
24	12.70	12.50	12.40	55	7	6
25	12.75	12.55	12.45	55	5	0
26	.....	.....	.....	54	17	6
27	12.70	12.50	12.40	54	2	6
28	.....	.....	.....	.....		
29	.....	.....	.....	.....		
30	12.75	12.55	12.45	54	12	6
High	12.80	12.60	12.50	55	7	6
Low	11.30	11.10	11.00	49	17	6
Average	11.93	11.74	11.63	52	9	4

COPPER.

LAKE COPPER PRICES.

Average monthly prices of Lake Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.93	12.75	14.37½	16.89	14.76
Feb.	13.76½	12.73	14.38½	15.37½	14.98
Mar.	13.71½	12.56	14.87	14.96	14.72
April	13.31	12.41	15.98	15.55	14.68
May	12.98	12.32	16.27	15.73	14.44
June	12.83½	12.63	17.43	15.08	14.15
July	12.62½	12.72	17.37	14.77	13.73
Aug.	12.78½	12.70	17.61	15.79	12.68
Sept.	12.72	12.57	17.69	16.72	12.44
Oct.	12.90	12.47½	17.69	16.81	11.66
Nov.	13.00½	12.84	17.66	15.90	11.93
Dec.	12.92	13.79	17.62½	14.82	.....
Av..	13.12	12.71	16.58	15.70	.....

ELECTROLYTIC COPPER PRICES.

Average monthly prices of Electrolytic Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.68	12.56	14.27	16.75½	14.45
Feb.	13.51	12.48	14.26	15.27	14.67
Mar.	13.42½	12.31	14.78	14.92½	14.33½
April	12.93	12.15½	15.85	15.48	14.34
May	12.67	12.13	16.16	15.63	14.13
June	12.59	12.55	17.29	14.85	13.81
July	12.36½	12.62½	17.35	14.57	13.49
Aug.	12.56	12.57½	17.60	15.68	12.41½
Sep.	12.49	12.39	17.67	16.55	12.09
Oct.	12.77½	12.36	17.60	16.54	11.40
Nov.	12.87½	12.77	17.49	15.47	11.74
Dec.	12.72½	13.71	17.50½	14.47	.....
Av..	12.88	12.55	16.48	15.52	.....

CASTING COPPER PRICES.

Average monthly price of Casting Copper in New York.

	1910.	1911.	1912.	1913.	1914.
Jan.	13.60	12.39	14.02	16.57	14.27½
Feb.	13.41	12.33	14.02	15.14	14.48
Mar.	13.31	12.20	14.53	14.76	14.18
April	12.87	12.07	15.72½	15.33	14.18
May	12.62	12.08	16.01	15.45½	14.00
June	12.52	12.40	17.08	14.72	13.65
July	12.30	12.45½	17.09	14.40½	13.34½
Aug.	12.48	12.42	17.35	15.50	12.27
Sept.	12.46	12.23	17.51	16.37½	12.00
Oct.	12.70	12.21	17.44	16.33	11.29
Nov.	12.82	12.61	17.34	15.19	11.63
Dec.	12.64	13.56½	17.34	14.22	.....
Av..	12.81	12.42	16.29	15.5	.....

VISIBLE SUPPLY OF COPPER.

Visible supply of copper at the end of each month based on the returns of the Copper Producers' Association and H. R. Merton & Company.

	Stocks in American Producers' hands.	European Visible Supply.	Combined Visible Supply.
1910—			
June ..	168,386,017	232,863,680	401,249,697
July ..	170,640,678	222,295,360	392,936,038
Aug. ..	168,881, 45	218,413,440	387,294,685
Sept. ..	148,793,714	210,472,640	359,266,354
Oct. ..	139,261,914	198,065,280	337,327,194
Nov. ..	130,389,069	193,200,000	323,589,069
Dec. ..	122,030,195	187,705,280	309,735,475
1911—			
Jan. ..	142,439,490	*236,976,320	379,415,810
Feb. ..	156,637,770	226,210,880	382,848,650
Mar. ..	162,007,934	223,030,080	385,038,014
April ..	165,555,908	212,280,320	377,836,228
May ..	165,995,932	202,413,120	368,409,052
June ..	157,434,164	195,937,280	353,371,444
July ..	137,738,858	192,584,000	330,322,858
Aug. ..	133,441,501	191,215,360	324,656,861
Sept. ..	140,894,856	191,945,600	332,840,456
Oct. ..	134,997,642	176,816,640	311,814,282
Nov. ..	111,785,188	164,151,680	275,936,868
Dec. ..	89,454,695	158,329,920	247,784,615
1912—			
Jan. ..	66,280,643	153,820,800	220,101,443
Feb. ..	62,939,988	141,135,680	204,075,668
Mar. ..	62,367,557	136,808,000	199,175,557
April ..	65,066,029	134,155,840	199,221,869
May ..	49,615,643	117,797,120	167,412,763
June ..	44,335,004	107,817,920	152,152,924
July ..	50,280,421	113,290,240	163,570,661
Aug. ..	46,701,374	113,783,040	160,484,414
Sept. ..	63,065,587	107,403,520	170,469,107
Oct. ..	76,744,964	103,801,600	180,546,564
Nov. ..	86,164,059	96,938,240	183,102,299
Dec. ..	105,312,582	96,857,600	202,170,182
1913—			
Jan. ..	123,198,332	96,546,240	219,744,572
Feb. ..	122,302,198	100,067,520	222,369,718
Mar. ..	104,269,270	†100,965,760	205,235,030
April ..	125,540,108	98,374,720	173,923,828
May ..	67,474,225	90,018,880	157,493,105
June .	52,904,606	85,559,040	138,463,646
July ..	53,594,945	79,804,480	133,399,425
Aug. ..	38,314,037	76,260,800	114,574,837
Sept. ..	29,793,094	62,314,560	92,107,654
Oct. ..	32,566,382	57,854,480	90,420.862
Nov. ..	47,929,429	59,935,680	107,865.109
Dec. ..	91,438,867	66,124,800	157,563,667
1914—			
Jan. ..	87,296,685	58,114,560	145,411,245
Feb. ..	78,371,852	60,374,720	138,746,572
Mar. ..	64,609,319	58,528,960	123,138,279
April ..	70,337,001	65,582,720	135,919,721
May ..	84,342,641	72,508,800	156,851.441
June ..	106,110,663	74,527,040	180,637,703

July .. Statistics suspended indefinitely.

* Hamburg and Rotterdam stocks included.

† Bremen stocks included.

TIN.

TIN IN NOVEMBER.

The month opened with tin at 32c and an excited market on the news of Turkey's entry into the war, and fears of the Suez Canal being endangered, and on heavy purchases, combined with enquiries from Europe, the market jumped on November 4th to 33½c. A contributory cause for the advance was the favorable monthly statistics showing a decrease in the visible supply during October of some 3500 tons, caused by the sinking of the "Trolius" by the "Emden" with nearly 1000 tons, London deliveries of 1700 tons larger than previous month and smaller Straits shipments. Also the Dutch Government at this time withdrew their auction sale of 2500 tons, but whether this meant that they had made a sale by private treaty to Germany will not be known probably for months to come. On November 9th both the New York and London Metal Exchanges, which had been closed since the end of July, were reopened, and on the following day spot was up to 34½c here and @ 150 10s in London. But buyers becoming shy and more willingness being shown to sell futures the market began to decline and by the 19th had reached 32¼. At this point, attracted by the lower prices, a good demand set in from consumers especially for futures. The demand for spot disclosed a great scarcity and disinclination to sell, and the market in a few days was up again to 34⅛. There were grave doubts for a time whether there would not be a squeeze on November deliveries, but the arrival of the "Marquette" with 830 tons in the nick of time prevented this, and while the future market continued firm the spot price declined again to 33¼ at which the month closes.

During the month there was very little spot buying, the premium existing for prompt deliveries due to the small stocks having interfered with business, but there were good purchases by the larger consumers for January to April deliveries.

The outlook for 1915 is reported to be favorable for a large consumption, the tinplate trade expecting a new high record year.

The feature that has lately developed and which is likely to favor prices is the recovery in speculative dealings in the metal in [illegible]. This was completely killed by the war, but with more settled financial conditions is now recovering. Tin is likely to attract buying for a rise as the price is 8c per pound less than a year ago, visible supply of the world about 3,000 tons less, a substantial falling off in production in the Straits, while the tin in Bolivia and South Africa is being to a great extent left in the ground, their principal smelting facilities being cut off through the isolation of Germany. The proposition to erect tin smelters in this country to smelt these concentrates has made no progress, and there does not seem to be any extension being made to the English smelting facilities. The situation and prospects seem to favor higher prices in the future.

TIN PRICES IN NOVEMBER.

	New York.	London — Prompts.			London — Futures.		
	Cents.	£	s	d	£	s	d
1	.....	.....			.....		
2	32.00	132	0	0	.....		
3	.....	135	10	0	.....		
4	33.50	135	10	0	137	0	0
5	34.00	136	0	0	137	10	0
6	34.25	138	5	0	139	5	0
7	.....	.....			.....		
8	.....	.....			.....		
9	34.25	139	10	0	.....		
10	34.50	139	0	0	.....		
11	34.00	138	0	0	.....		
12	34.00	138	10	0	.....		
13	33.62½	139	0	0	.....		
14	.....	.....			.....		
15	.....	.....			.....		
16	33.50	139	0	0	.....		
17	32.87½	138	10	0	137	10	0
18	32.87½	137	10	0	137	0	0
19	32.25	135	15	0	135	0	0
20	32.62½	136	15	0	136	0	0
21	.....	.....			.....		
22	.....	.....			.....		
23	33.75	139	10	0	138	10	0
24	34.00	140	0	0	138	10	0
25	34.12½	142	5	0	140	15	0
26	.....	142	5	0	141	10	0
27	33.62½	141	10	0	140	5	0
28	.....	.....			.....		
29	.....	.....			.....		
30	33.25	143	5	0	141	10	0
High	34.50	143	5	0	141	10	0
Low	32.00	135	10	0	135	0	0
Average	33.50	138	9	0	138	9	7

TIN.

VISIBLE SUPPLIES.

Total visible supply of tin at the end of each month.

	1910.	1911.	1912.	1913.	1914.
Jan...	23,024	18,616	16,707	13,971	16,244
Feb. .	21,288	17,260	14,996	12,304	17,308
Mar..	20,203	16,682	15,694	11,132	16,989
Apr..	17,932	14,441	11,893	9,822	15,447
May.	18,998	15,938	14,345	13,710	17,862
June.	15,700	16,605	12,920	11,101	16,027
July .	17,433	16,707	13,346	12,063	14,167
Aug. .	17,943	16,619	11,285	11,261	14,452
Sept..	18,999	16,672	13,245	12,943	14,613
Oct. .	18,183	14,161	10,735	11,857	10,894
Nov..	18,875	16,630	12,348	14,470	11,483
Dec..	17,194	16,514	10,977	13,893	.....
Av'ge	18,815	16,404	13,207	12,377	.....

SHIPMENTS FROM THE STRAITS.

Monthly shipments of tin from the Straits Settlements to Europe and United States, as per Powell's returns:

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	5,733	5,895	4,290	4,018	6,050	5,290
Feb.	4,033	4,147	4,290	5,260	4,660	6,520
Mar.	3,380	2,877	4,510	5,150	4,810	4,120
Apr.	4,904	4,025	3,140	4,290	4,400	4,930
May	5,184	4,965	4,310	5,760	6,160	6,900
June	4,618	4,120	5,050	4,290	4,820	5,870
July	5,644	5,040	4,660	4,580	4,770	4,975
Aug.	4,702	5,700	4,680	5,210	5,990	3,315
Sep.	5,081	4,220	5,150	5,430	5,160	4,973
Oct.	3,801	4,480	4,350	4,450	5,020	.....
Nov.	5,510	4,840	5,070	5,600	5,560	.....
Dec.	5,835	4,270	5,970	4,980	5,110	.....
	58,425	54,579	55,470	59,018	62,550	
Av..	4,869	4,548	4,622	4,918	5,213	

CONSUMPTION IN THE UNITED STATES.

Monthly deliveries of tin in the United States exclusive of Pacific Coast.

	1909.	1910.	1911.	1912.	1913.	1914.
Jan.	3,200	3,500	3,200	3,700	3,700	3,600
Feb.	2,700	3,600	3,800	4,050	3,500	3,300
Mar.	3,900	4,000	5,100	4,000	5,900	4,450
Apr.	4,904	4,025	3,140	4,290	4,400	4,900
May	3,900	3,600	3,400	4,250	3,350	3,800
June	3,200	5,000	2,900	2,850	3,800	3,650
July	3,600	3,800	4,300	5,150	3,900	3,900
Aug.	3,300	3,700	3,800	4,300	3,600	2,900
Sep.	3,200	3,300	4,200	3,600	3,100	3,600
Oct.	4,100	3,350	3,500	3,850	3,700	3,700
Nov.	4,000	3,800	3,100	4,300	2,800	2,600
Dec.	3,200	3,600	3,700	4,050	3,100	.....
	41,500	45,350	44,300	49,500	43,900	
Av.	3,458	3,779	3,692	4,125	3,658	

MONTHLY TIN STATISTICS.

Compiled by New York Metal Exchange.

	Nov. 1914.	Oct. 1914.	Nov. 1913.
Straits shipments:			
To Gt. Britain	3,720	4,400	4,325
" Continent	250	nil	870
" U. S.	1,185	1,210	895
Total from Straits	5,155	4,610	5,590
Australian shipments:			
To Gt. Britain	nil	nil	325
" U. S.	nil	nil	nil
Total Australian	nil	nil	325
Consumption:			
London deliveries	2,121	2,988	1,318
Holland deliveries	182	1,133	1,001
United States*..	2,600	3,700	2,800
Total	4,903	7,281	5,119
Stocks at close of month			
In London:			
Straits, Australian	1,340	2,349	2,385
Other kinds . .	1,192	2,092	†
In Holland	nil	37	2,322
In United States*	2,026	1,146	2,034
Total	4,558	5,624	6,741
Afloat at close of month:			
To London	4,970	3,340	4,861
" Holland . . .	nil	nil	183
" U. S. . . .	1,955	1,930	2,685
Total . . .	6,925	5,270	7,729
	1914. Nov. 30,	1914. Oct. 31,	1913. Nov. 30,
Total visible supply	11,483	10,894	14,470

* Exclusive of Pacific ports.
† Not reported.

TIN AND SILVER. (Monthly Averages.)

	New York — Tin			New York — Silver		
	1912.	1913.	1914.	1912.	1913.	1914.
Jan.	43.24	50.45	37.74	56.22	62.93	57.56
Feb.	43.46	48.73	39.93	59.04	61.64	57.50½
Mar.	42.86	46.88	38.08	58.37	57.87	58.07
Apr.	44.02	49.12	36.10	59.23	59.49	58.52
May	46.12	49.14	33.30	60.88	60.36	58.18
June	47.77	44.93	30.65	61.29	58.99	56.47
July	44.75	40.39	31.75	60.66	58.72	54.68
Aug.	44.75	41.72	50.59½	61.61	59.29	54.34
Sep.	49.18	42.47	32.79	63.08	60.64	53.29
Oct.	50.11	40.50	30.39½	63.47	60.79	50.65
Nov.	49.90	39.81	33.50	62.79	58.99	49.10
Dec.	49.90	37.64	.....	63.37	57.76	.....
Year	46.434	4.32	.....	60.83	59.79½	.....

SPELTER.

SPELTER IN NOVEMBER.

In the early part of November the spelter market was flat and uninteresting and during the first ten days the price remained around 4.80 to 4.85 East St. Louis with very little demand and very little business.

Then a demand from England set in which resulted in a first class buying movement for English account, and the market advanced steadily under the stimulus of this buying. By the end of November the market had worked up to 5.17½ East St. Louis and the advance has since carried the price to 5.50 by December 5th. One of the impressive features of the English buying this time has been that the orders were not limited to early shipments but were distributed over the next three months, which is taken to mean that England considered spelter a good purchase into the future. There is no way of saying how much spelter was bought for export on this movement but we estimate it was in the neighborhood of 20,000 tons, of which probably only one quarter will leave the country this month. The exports of spelter during the three months ending October amounted to 65,504,574 pounds, an average of about 10,000 tons per month and during the continuation of the war it is likely that our exports will continue at this rate. Both Germany and Belgium are cut off from the rest of the world and the United States will have to furnish the bulk of the spelter that the former used to supply to England and France and in a smaller measure to Italy. There is no fear of competition from Australia for some while, for there are no zinc smelters to handle the Australian ore, which has hitherto gone to Belgium and Germany. There are negotiations on foot to erect smelters in this country on the Atlantic seaboard for smelting Australian concentrates but nothing definite has been settled yet and it will be a long time in the future before this becomes a market factor.

Home consumption of spelter has continued to be poor, and the largest individual consumers, the sheet galvanizers, have just been through one of the worst months in their experience. The operations of the [illegible] not much over 35 per cent of capacity during November. Admitting that the brass trade has seen a slight improvement and that the zinc rolling mills have been busy, still the entire consumption of the country was not much over 50 per cent of normal owing to the inactivity of the galvanizers.

If spelter can advance ¾c per pound in the face of unsatisfactory conditions at home it can be guessed what would happen if there should be a revival in business, especially the iron and steel business. The advance in the market was not accomplished

SPELTER AND LEAD PRICES IN NOVEMBER.

	N. Y. Cts.	St. L. Cts.	London. £	s	d	N. Y. Cts.	St. L. Cts.	London. £	s	d
1.	....	....	.....			....	....	.....		
2	5.02½	4.85	24	5	0	3.50	3.37½	18	0	0
3.	....	....	24	10	0	....	....	18	0	0
4.	5.00	4.82½	24	5	0	3.52½	3.40	18	5	0
5.	5.00	4.80	24	5	0	3.52½	3.40	18	0	0
6.	5.00	4.80	24	0	0	3.52½	3.40	18	2	6
7.	....	....	.....			....	....	.....		
8.	....	....	.....			....	....	.....		
9.	5.00	4.80	24	5	0	3.52½	3.40	18	2	6
10.	5.00	4.80	24	5	0	3.52½	3.40	18	0	0
11.	5.00	4.82½	24	5	0	3.52½	3.40	18	0	0
12.	5.05	4.85	24	5	0	3.62½	3.50	17	17	6
13	5.10	4.92½	24	10	0	3.62½	3.50	17	17	6
14	....	....	.....			....	....	.....		
15	....	....	.....			....	....	.....		
16.	5.17½	5.00	24	17	6	3.62½	3.52½	17	17	6
17	5.20	5.05	25	0	0	3.72½	3.60	18	0	0
18	5.25	5.07½	25	2	6	3.72½	3.61½	18	5	0
19	5.25	5.07½	25	5	0	3.92½	3.81½	18	5	0
20	5.27½	5.10	25	5	0	3.92½	3.81½	18	7	6
21.	....	....	.....			....	....	.....		
22.	....	....	.....			....	....	.....		
23.	5.27½	5.11½	25	5	0	3.92½	3.81½	19	5	0
24.	5.27½	5.11½	25	5	0	3.92½	3.81½	19	5	0
25	5.30	5.12	25	12	6	3.92½	3.81½	19	2	6
26	..	....	25	12	6	....	....	19	5	0
27.	5.35	5.15	25	15	0	3.92½	3.81½	19	5	0
28	....	....	.....			....	....	.....		
29.	....	....	.....			....	....	.....		
30	5.37½	5.17½	25	15	0	3.82½	3.70	19	5	6
High	5.40	5.20	25	15	0	3.95	3.82½	19	5	6
Low	5.00	4.80	24	0	0	3.50	3.37½	17	17	6
Av'ge	5.15	4.97	24	16	8	3.76	3.58	18	7	11

SPELTER.

by means of manipulation but exclusive of export business the buying [illegible] of copper, was based on expectations rather than realities. However as consumers' stocks had reached a low level they were justified to allow sentiment to influence their actions, and as the price of spelter is low they should have no cause to be dissatisfied with the purchases they have lately made.

There is much speculation concerning stocks and according to general opinion these have been reduced from 65,000 tons on June 30th to about 40,000 tons. This is a considerable amount but the fact that there could be a decrease of some 25,000 tons in less than six months is a still more important factor.

Altogether the situation in spelter is the best we have had in more than a year.

SHEET ZINC ADVANCED TO 8.50c BASE.

The leading manufacturer of sheet zinc has advanced the base price ¼c per pound to 8.50c f.o.b. smelter, effective December 5th.

The following table gives the changes in the price of sheet zinc since the beginning of the year together with the price of spelter ruling on the same day.

1914—	Sheet Zinc.	Spelter St. Louis.
January 1	7.50	5.12
January 22	7.25	5.12
March 12	7.00	5.25
August 11	7.25	5.25
August 18	7.50	5.65
August 21	7.50 to 8.00	5.80
August 31	8.50	5.90
October 13	8.00	4.60
December 3	8.25	5.50
December 5	8.50	5.50

REVIEW OF JOPLIN ORE MARKETS FOR NOVEMBER.

The month of November was one of fair prices for zinc ores and closed with a radical advance in lead ores. These readjustments in price have helped steady mining conditions and at the present time there is apparent more optimism for the future than has been exhibited for some months.

The market opened firm for zinc ores at [illegible] ed a slight easing up in the price till $44 was the general high base price. The last [illegible] again touched $46 while very little ore sold under $43.

Following the year's tendency the calamine ore market has remained comparatively stronger than blende with an unsatisfied demand always apparent. The range for the month has been from $20 to $27 for 40 per cent grades.

The last two weeks of the month saw lead ores jump up to $45 to $47 for 80 per cent lead. The demand has been strong at all times and production has been absorbed practically all the time. This increase in lead ore prices from $40 to $43 up to $45 to $47 has helped very materially in preventing the extension of curtailment operations in the sheet ground area.

In spite of the general betterment of prices neither the production nor the shipments have shown any tendency toward increasing tonnage. The shipments of the month practically duplicated those of the previous month as measured by weeks. A total of approximately 4,000 tons of zinc ore was shipped each week. There was very little change in the surplus at stock and what there was showed itself in an increase. This came not so much from an increased output as a desire on the part of some operators to await better prices before selling their output. The demand shown in the buying would have absorbed considerable more than was taken had it been available.

With eleven months of the year gone, it is now practically possible to forecast what the final results will be from a production standpoint. This month ends with a production average of close to 4,000 tons of zinc ores and 700 tons of lead ores. Allowing for a December shipment of 16,000 tons of zinc ores and 2,800 tons of lead ores the production for the year will be approximately 258,000 tons of zinc ores or slightly less than 5,000 tons per week. Of lead ore there will be approximately 42,800 tons or an average weekly output of 800 tons. Zinc will fall below 1913 over 20,000 tons and lead about 5,000 tons. There will be a loss in values of very close to two and a

LEAD.

half million dollars over the previous year. There will be left in stocks about 14,000 tons of zinc ores and 1,000 tons of lead ores. The average price for zinc blende during the year 1914 is now over $5 less than in 1913. The average price for lead ore is over $6 less than in 1913. Taken in this light the year has been a remarkable one. It has demonstrated that when the average price for the year has been brought below $40 it will cut off from 20,000 to 40,000 tons of zinc ores.

LEAD IN NOVEMBER.

The month opened with a good volume of business on the basis of the Trust price, 3½c New York with sellers declining to sell beyond December. An export demand developing, independents became shy sellers, and indications began to develop that the market was likely to advance, and buyers showed great anxiety to buy February, March and April, bidding for same a premium of $3 per ton over the spot price. It was also reported that the leading interest had booked some 10,000 tons for export during early November. The fact that the price was at the lowest point in 16 years was also creating a great deal of interest. By Nov. 10th independents were able to get 2½c to 5½c per hundred pounds over the Trust price, showing that while no official advance had been announced the leading interest were not free sellers. At this time the figures of the September exports were announced as 5,585,246 pounds, making a total of 78,669,238 pounds for the nine months of this year, this year being the only one when domestic lead was exported. Buyers becoming insistent three official advances were made in rapid succession:

Nov. 12th	$2 per ton to	3.60	New York
17th	"	3.70	"
19th	"	3.90	"

bringing the price exactly up to the average price for the 10 months ending October, but still ½c per pound under the average of 1913.

The market remained firm at the advance, and while naturally buyers were not so eager in placing orders, the improvement in business in the metal trade generally made the trade feel that no decline might be expected. On Nov. 27th the Government placed an order for 1,600,000 pounds, which went to two dealers who had bid 4.19c delivered Bridesburg, Pa., the American Smelting & Ref. Co.'s bid being 4.95c. Whether this latter was a clerical error and a bid of 3.95c was intended will never be known, but on the following day they announced, to the astonishment of the trade, a reduction in their price of $2 per ton bringing price to 3.80c New York and the market closes at this figure. It is suggested that the object was to prevent an increase in production until general business thoroughly catches up. While it causes temporary uncertainty, there has been a large reduction in producers stocks, and the prospects point to a strong and perhaps a higher market in December.

The changes in the Trust price at New York since the beginning of the year have been as follows:

1914—		
January 1	opening price	4.15
January 9	Reduced	.5c to 4.10
February 2	Advanced	.5c to 4.15
February 11	Reduced	.15c to 4.00
March 25	"	.10c to 3.90
March 30	"	.10c to 3.80
April 27	Advanced	.10c to 3.90
September 24	Reduced	.15c to 3.75
October 5	"	.15c to 3.60
October 7	"	.10c to 3.50
November 12	Advanced	.10c to 3.60
November 17	"	.10c. to 3.70
November 19	"	.20c to 3.90
November 28	Reduced	.10c to 3.80

LEAD (Monthly Averages.)

	-New York*-			—St. Louis—		
	1912.	1913.	1914.	1912.	1913.	1914.
Jan.	4.44	4.35	4.11	4.34	4.20	3.99½
Feb.	4.04	4.35	4.06	3.99	4.20	3.95
Mar.	4.07	4.35	3.97	4.06	4.21	3.83
Apr.	4.20	4.40	3.82	4.14	4.25½	3.70
May	4.20	4.36	3.90	4.09	4.22	3.81
June	4.39½	4.35	3.90	4.31	4.21	3.80
July	4.73	4.37	3.90	4.60	4.25	3.75
Aug.	4.56½	4.63	3.90	4.46	4.56	3.73½
Sep.	5.05	4.75	3.86	4.94	4.62	3.67
Oct.	5.10	4.45	3.54	4.91	4.31	3.39
Nov.	4.69	4.34	3.68	4.50	4.18	3.58
Dec.	4.56	4.06	....	4.19	3.94	....
Year	4.48½	4.40	....	4.38	4.26	....

* Trust price.

ANTIMONY

ANTIMONY IN NOVEMBER.

By the beginning of November the antimony market had quieted down from the excitement caused by Russian buying and on profit taking sales the tendency was a reactionary one. It seems, however, that Russia had only transferred her efforts to buy from New York to Japan, and it was difficult to get any offers from Eastern sources of supply, Japan and China, and English producers being filled with Government orders were unable to make any offers.

Getting no satisfaction abroad Russia has again enquired in this market, and has more or less kept things on the *qui vive* here all the month. It is very doubtful whether any large orders were placed, and it has been more a matter of negotiation than actual business, for had it been otherwise antimony prices would have advanced. As it is prices remained nominally unchanged throughout the month. Another reason for this has been that the larger consumers are well supplied by contracts, and there has been virtually no jobbing demand. At the close of the month future deliveries became firmer on efforts of Japanese importing houses to buy back contracts for January, February and March shipments from Japan, probably to resell direct to Russia, but very little actual business appears to have resulted owing to reluctance of sellers.

Prices for spot antimony close at around where they have been all the month:

16¾c to 17c for Cooksons,

15¾c for Halletts,

[illegible] 14c for Japanese grades.

No future Cooksons or Halletts are offered but Japanese grade at the close of the month is obtainable for January shipment from Japan at 9.00 to 9.50 c.i.f. New York equal to 9¾c to 10¼c duty paid.

ALUMINUM, ANTIMONY and SILVER PRICES IN NOVEMBER.

		Antimony			Silver	
	Aluminum.	Cookson.	Hallett.	Hungarian.	New York.	London.
Day.	Cts.	Cts.	Cts.	Cts.	Cts.	d.
1	.....	.....	.....	.....	.....	.....
2	18.25	17.25	15.75	13.75	48	22
3	.....	.....	.....	.....	.....	22
4.	18.25	17.25	15.75	13.75	49	22
5.	18.25	17.25	15.75	14.75	49⅞	23
6.	18.25	17.50	16.00	14.25	49	23
7	.....	.....	.....	.....	49⅞	23
8	.....	.....	.....	.....	.....	.....
9	18.75	17.50	16.00	14.25	49	22
10.	18.75	17.50	16.00	14.25	49	22⅛
11.	18.75	17.50	16.00	14.25	49	22
12.	18.75	17.50	16.00	14.25	48	22
13.	18.75	17.50	16.00	14.50	47	22
14.	.....	.....	.....	.....	47	22⅛
15.	.....	.....	.....	.....	.....	.....
16.	18.75	17.50	16.00	14.50	48	22
17	19.00	17.25	15.75	14.25	49	22⅛
18.	19.00	17.25	15.75	14.25	49	22⅛
19	19.25	17.25	15.75	14.25	49	22
20.	19.25	17.25	15.75	14.25	49	22⅛
21.	.....	.....	.....	.....	49	22
22.	.....	.....	.....	.....	.....	.....
23.	19.25	17.25	15.75	14.25	48	22⅛
24.	19.25	17.00	15.75	14.00	49⅜	22⅛
25.	19.25	17.00	15.75	14.00	49	22
26	.....	.....	.....	.....	.....	22⅞
27	19.00	16.75	15.75	14.00	49	22
28.	.....	.....	.....	.....	49	22⅛
29.	.....	.....	.....	.....	.....	.....
30.	19.00	16.75	15.75	14.00	52½	22⅞
High	19.50	18.00	16.50	14.75	49	23
Low.	18.00	16.50	15.50	13.50	47⅝	22⅛
Av.	18.87	17.26	15.84	14.14	49.10	22.73

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., of The Steel and Metal Digest, published monthly at New York, N. Y., required by the Act of August 24, 1912.

Editor, C. S. Trench, 81 Fulton St., New York; Managing Editor, C. S. J. Trench, 81 Fulton St., New York; Business Manager, A. R. Trench, 81 Fulton St., New York; Publisher, American Metal Market Company, 81 Fulton St., New York.

Owners: Names and addresses of stockholders holding 1 per cent or more of total amount of stock:

American Metal Market Co., 81 Fulton St., New York.

C. S. Trench, 81 Fulton St., New York.

C. S. J. Trench, 81 Fulton St., New York.

I. Trench, 81 Fulton St., New York.

Known bondholders, mortgagees, and other security holders holding one per cent or more of total amount of bonds, mortgages, or other securities: None.

C. S. Trench, Editor.

Sworn to and subscribed before me this first day of October, 1914.

John Bowen,
(Seal) Notary Public, Kings Co.
(My commission expires March 30, 1916.)

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Calumet & Hecla	Buffalo, N. Y.	B. L.
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Phelps Dodge & Co.	Laurel Hill L. I.	P. D. Co.
U. S. Metals Ref. Co.	Chrome, N. J.	D. S.
Tottenville Copper Co.	Tottenville N. Y.	C. T. C.

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